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Model For Handling Stunting In Indonesia

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Abstract

Stunting is an occurance of stunted body growth as a result of a lack of complete nutritional intake both in quantity and quality that occurs in children in the first 1000 days of life (1000 HPK). One of the efforts that can be made is implementing a model for handling stunting in Indonesia which is expected to support reducing the prevalence of stunting in Indonesia and achieving the expected targets. The method used in this research is using the literature review method with the questions used in reviewing journals adjusted to PICOT and journal search terms via MESH (Medical Subject Heading), there are no restrictions in taking journals, researchers write keywords according to MESH (Medical Subject Heading). Headings) namely "stunting prevention", "pregnant women", "nursing mothers", "toddlers", and "moringa oleifera" were then selected as full text. The results and conclusions from several journals that have been analyzed show that in efforts to deal with stunting of pregnant women, children aged 0-6 months, and children aged 7-23 months in several developing countries, nutritional deficiencies are still the main problem causing stunting. Moringa Oleifera is a plant that is rich in nutrients and is good for fulfilling nutrition to prevent stunting in pregnant women, children aged 0-6 months and aged 0-23 months.

Keywords: *Stunting, Pregnant Women, Babies, Children, Moringa Oleifera.*

INTRODUCTION

Every child has the right to get good nutrition. Children who receive good nutrition will grow and develop optimally. However, three problems of malnutrition, namely, stunting, wasting and being overweight, are still obstacles to children's ability to grow and develop (WHO, 2023).

Stunting is occurence of stunted body growth as a result of a lack of complete nutritional intake both in quantity and quality that occurs in children in the first 1000 days of life (*1000 HPK*). This condition results in children whose height tends to be short for their age, because the height of children who experience stunting is below the standard deviation (<-2 SD) (Rikandi et al., 2022)

Stunting data according to WHO (World Health Organization) the number of countries with a very high prevalence of stunting has decreased by 40 percent since 2012, from 46 to 28 countries in the Percentage of children under 5 years affected by stunting, by country, in 2022. The distribution of the prevalence of stunting shows that Indonesia is still in the very high category or the prevalence reaches ≥30% in the incidence of stunting (WHO, 2023).

The prevalence of stunting in Southeast Asia based on WHO data in 2018 was 31.9% or 55.5 million children under five, then in 2019 it was 31% or 52.6 million children under five, then reached 30.1% or 51.1 million children under five in in 2020 (UNICEF/WHO/World Bank Group, 2021). Indonesia occupies the second highest stunting position for children under five in Southeast Asia, namely

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1.8%, the first position is Timor Leste at 48%, Laos is in the position after Indonesia with a prevalence of 30.2% in 2020 (Oktaria Batubara et al. , 2023). The 2021 SSGI (Survei Status Gizi Indonesia) results show that the prevalence of stunted toddlers in Indonesia is 24.4 percent, a decrease from the previous period of 27.7 percent (SSGBI 2019), and 30.8 percent (Riskesdas, 2018). The prevalence of stunting in the Special Region of Yogyakarta (DIY) according to the 2021 SSGI is 17.3 percent. This figure is the third lowest in Indonesia after Bali at 10.9 percent and DKI Jakarta at 16.8 percent.

When compared with the 2019 SSGBI results of 21 percent, there has been a decrease in the prevalence of stunting in DIY in 2021 by 3.7 percent. The prevalence of stunted toddlers in each district/city in DIY, respectively from highest to lowest based on the 2021 SSGI, is: Gunungkidul 20.6 percent; Bantul 19.1 percent; Yogyakarta City 17.1 percent; Sleman 16.0 percent; and Kulon Progo 14.9 percent (Fathurachman, 2023).

Factors that cause stunting include the mother's lack of knowledge regarding health and nutrition before and during pregnancy, as well as after the mother gives birth, limited health services including ANC-Ante Natal Care (health services for mothers during pregnancy) Post Natal Care and quality early learning, lack of household/family access to nutritious food, and lack of access to clean water and sanitation (Kalla, 2017).

Based on several factors, one of the most prioritized is household/family access to nutritious food. Therefore, the stunting intervention framework in Indonesia has followed the model of the global movement known as Scaling-Up Nutrition (SUN) since 2010. This movement uses the basic principle that all residents have the right to have access to sufficient and nutritious food. In 2012, Indonesia carried out two stunting intervention designs, namely a specific nutrition intervention and a sensitive nutrition intervention which is still ongoing today.

Specific nutritional interventions are divided into several main interventions starting from the mother's pregnancy period until the birth of the toddler, including, specific nutritional interventions targeting pregnant women, specific nutritional interventions targeting breastfeeding mothers and children aged 0-6 months, as well as specific nutritional interventions targeting breastfeeding mothers and children aged 7-23 months (Kalla, 2017).

According to the results of the 2023 BKKBN National Working Meeting (Rakernas) on January 25 2023 at the NKKBS BKKBN room which was attended by the President of the Republic of Indonesia Joko Widodo, Minister of Health Budi Gunadi Sadikin in his speech conveyed the results of the 2022 Indonesian Nutrition Status Study (SSGI 2022) that the stunting rate SSGI fell from 24.4 percent in 2021 to 21.6 percent in 2022, or 2.8 percent in a year and has not yet reached the target of decreasing 3.5 percent a year.

According to the Minister of Health, it is hoped that the achievements in reducing stunting from 2023 to 2024 will be even greater because coordination and cooperation between parties and institutions will be better. Apart from that, the Covid-19 pandemic has now begun to be resolved so that more focus can be placed on the success of the program to reduce stunting rates. Through various interventions to achieve the target of 14 percent in 2024, it is hoped that the SSGI achievement in 2023 will be reached at 17.8 percent, or there will be a reduction in stunting prevalence of 3.8 percent every year in the next 2 years (Fathurachman, 2023).

Based on the BKKBN National Working Meeting, more efforts are needed to achieve the target of reducing stunting rates. Therefore, one of the efforts that can be made is implementing a model for handling stunting in Indonesia which is expected to support reducing the prevalence of stunting in Indonesia and achieving the expected targets.

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MATERIAL AND METHOD

The method used in this research is using the literature review method with the questions used in reviewing journals adjusted to PICOT and journal search terms via MESH (Medical Subject Heading), there are no restrictions in selecting journals. The journals used in the literature review were obtained through the international journal provider database Scimago, Scientific Indonesia journals via Google Scholar, and Pubmed. The author opened the websites www.Search.Proquest.com and www.google scholar .com. Researchers wrote down keywords according to MESH (Medical Subject Heading), namely "stunting prevention", "pregnant women", "infant", "toddlers", and "moringa oleifera" then selected full text.

Model Diagram of Handling Stunting in Indonesia

RESULT AND DISCUSSION

a. Stunting in Development Country

Authors	Title	Design	Sample	Result
(Mbuya & Humphrey, 2016)	Preventing Environmental Enteric Dysfunction through Improved Water, Sanitation and Hygiene: an opportunity for stunting reduction in developing countries	Systematic review	-	Chronic exposure to a contaminated environment creates a constant state of survival responses characterized by loss, malabsorption, maldigestion and inefficient utilization of nutrients. In the context of marginal diets and recurrent infections, this 'impoverished gut' condition likely explains a significant portion of the unresolved stunting affecting one in every three children in developing countries. To prevent stunting, we need to prevent the onset of EED because (i) EED is self-perpetuating once it has developed; (ii) recovery from EED is relatively slow even when there is a dramatic change in environment; and (iii) the window for critical growth and development is short (between conception and the first two years of postnatal life). **Interventions such as baby-WASH, aimed at preventing and reducing environmental enteric dysfunction, may be central to global stunting reduction efforts.**
(Ponum et al., 2020)	Stunting diagnostic and awareness: impact assessment study of sociodemographic factors of stunting among school-going children of Pakistan	A cross-sectional study has been conducted in schools of Multan District, Pakistan for the period of January 2019 to June 2019.	Sample data of 1420 children, aged 4 to 18 years using three age groups	Our study concluded that 24.93% children were stunted, out of which, age group of 8–11 years children were highly stunted. The study showed that the literacy of mother or caregiver had high impact on children's health. Therefore, Stunting Diagnostic and Education app was developed to educate mothers to diagnose stunting and to teach about the prevention of stunting.
(Prendergast et al., 2019)	Independent and Combined Effects of	randomised 2 × 2 factorial trial in	Between Nov 22, 2012, and March 27, 2015, 726	Since HIV-exposed children are particularly vulnerable to undernutrition and responded well to improved

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	Improved Water, Sanitation, and Hygiene (WASH), and Improved Complementary Feeding, on Stunting and Anaemia among HIV-exposed Children in Rural Zimbabwe: a cluster-randomised controlled trial	two districts in rural Zimbabwe.	HIV-positive pregnant women were included in the trial. 668 children were evaluated at 18 months (147 from 46 standard of care clusters; 147 from 48 IYCF clusters; 184 from 44 WASH clusters; 190 from 47 IYCF plus WASH clusters). Of the 668 children, 22 (3%) were HIV-positive, 594 (89%) HIV-exposed uninfected, and 52 (8%) HIV-unknown	complementary feeding, IYCF interventions could have considerable benefits in areas of high antenatal HIV prevalence. However, elementary **WASH interventions did not lead to improvements in growth.**
(Tasic et al., 2020)	Drivers of stunting reduction in Ethiopia: a country case study	Employed both quantitative and qualitative methods. Specifically, a systematic literature review, retrospective quantitative data analysis using Demographic and Health Surveys from 2000-2016, qualitative data collection and analysis, and analyses of key nutrition-specific and -sensitive policies and programs were undertaken.	The initial database search found 10,789 records, and after duplicates were removed and records were screened, a total of 150 were included in our analysis, of which 5 were systematic reviews, 124 were quantitative analyses, and 21 were gray literature	**Ethiopia's stunting decline was driven by both nutrition-specific** and -sensitive sectors, with particular focus on the agriculture sector, health care access, sanitation, and education.
(Conway et al., 2020)	Drivers of stunting reduction in Nepal: a country case study	Using a mixed-methods approach, 4 types of inquiry were employed: *1*) a systematic review of published peer-reviewed and gray literature; *2*) retrospective quantitative data analyses using	Qualitative data collection involved in-depth interviews with 18 national expert stakeholders and 10 community-based health workers, as well as 2 focus group discussions with 10–12 mothers in	Though there is no silver bullet responsible for the decline in stunting seen in Nepal over the last 20 y, when all of the above factors are combined together, a picture emerges of a multipronged approach centered on poverty reduction, health care access, education, and sanitation that has allowed Nepal to make laudable progress in combating chronic child malnutrition.

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		Demographic and Health Surveys from 1996 to 2016; *3*) a review of key nutrition-specific and -sensitive policies and programs; and *4*) retrospective qualitative data collection and analyses.	Thecho and Dukuchhap who had children born from 1995 to 2000 and 2010 to 2015, in order to understand the changes in child health and nutrition that had taken place over the study period. Data collection took place from December 2017 to May 2018.	
(Huicho et al., 2020)	Drivers of stunting reduction in Peru: a country case study	Demographic and Health Surveys were used to conduct descriptive analyses [height-for-age z scores (HAZ) means and distributions, equity analysis, predicted child growth curves through polynomial regressions] and advanced regression analyses.	Population based on Age group, there are <6 month is 1372, 6-23month 5915, ≥ 24 month is 9712, <36 month is 10949, and <5 years old is 16999	The Peru case is an illustrative example of a country that was able to rapidly reduce its under-5 stunting prevalence after a stagnant period. This is attributed to a combination of diverse factors ranging from effective leadership and strong civil society advocacy to targeting vulnerable populations during the implementation of evidence-based RMNCH interventions. The capacity to take advantage of a positive economic environment characterized by sustained economic growth, the impulse of programmatic initiatives including effective and sustained political leadership, the active participation of civil society in the design and implementation of policies and programs, and the emphasis on adequate accountability mechanisms at all levels, along with the sustained and equitable implementation of out-of-health-sector and within-health-sector evidence-based interventions, constitute valuable lessons derived from the Peruvian experience, which should be taken into account by countries of different regions as part of their efforts to combat child stunting.
(Brar et al., 2020)	Drivers of stunting reduction in Senegal: a country case study	A mixed methods approach was implemented, comprising quantitative data analysis, a systematic literature review, creation of a timeline of nutrition-related programs, and qualitative interviews with	Population-wide gains in average child HAZ and stunting prevalence have occurred from 1992/93 to 2017.	**Senegal's success in the stunting decline is largely attributed to the country's political stability, the government's prioritization of nutrition and execution of nutrition efforts using a multisectoral approach,** improvements in the availability of health services and maternal education, access to piped water and sanitation facilities, and poverty reduction. Further efforts in the health, water and sanitation, and agriculture sectors will support continued success.

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		national and regional stakeholders and mothers in communities. Demographic and Health Surveys and Multiple Indicator Cluster Surveys were used to explore stunting inequalities and factors related to the change in height-for-age z-score (HAZ) using difference-in-difference linear regression and the Oaxaca-Blinder decomposition method.		
(Wigle et al., 2020)	Drivers of stunting reduction in the Kyrgyz Republic: A country case study	Mixed methods study employed 4 inquiry methods, including: *1*) a systematic scoping literature review; *2*) retrospective quantitative data analyses, including linear regression multivariable hierarchical modeling, difference-in-difference analysis, and Oaxaca–Blinder decomposition; *3*) qualitative data collection and analysis; and *4*) analysis of key nutrition-specific and -sensitive policies and programs.	Based on survey since 1997 to 2014 in demography data	**National government and donor efforts to implement nutritionspecific** and -sensitive efforts after the collapse of the Soviet Union have contributed to substantial improvements in stunting among children in the Kyrgyz Republic. Improvements in linear growth were achieved amidst significant political changes, as well as periods of civil unrest and economic decline. Economic growth and increased labor migration represented key enablers for poverty reduction and improved food security. The introduction of land and health sector reforms also represents notable developments in the nutrition transition. **The Kyrgyz Republic represents a stunting case study exemplar with multilevel enablers and factors that have contributed to dramatic improvements in health, nutrition, and stunting of children over time.** Understanding and exploring progress and prospects for improvement are critical to ensuring the sustainability of improvements and dissemination of lessons learned to other countries in Central Asia and globally.

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b. Stunting in Developed Country

According to research (Skelton et al., 2020) entitled Garden-based interventions and early childhood health: an umbrella review of various reviews, garden-based interventions are the most effective in improving nutrition-related outcomes in children, including nutritional status and consumption. Fruits and vegetables. Several reviews examined child health outcomes of garden-based interventions unrelated to nutrition, such as physical activity, academic performance. Across settings, there is the most evidence to support garden-based interventions taking place in the yard, compared with those clearly originating from early care and education or community settings.

c. Prevent Stunting in Indonesia

So far, the government's attention to overcoming the stunting problem is quite adequate, as evidenced by the existence of various policies to deal with the stunting problem. These policies include Law Number 36 of 2009 concerning Health, Presidential Regulation Number 42 of 2013 concerning the National Movement for the Acceleration of Nutrition Improvement, Minister of Health Regulation Number 23 of 2014 concerning Efforts to Improve Nutrition and other laws made to support stunting management. Apart from that, the stunting problem is part of the national priority program of the National Medium Term Development Plan (RPJMN) 2020-2024 (Sholichin, 2019).

So far, the government's attention to overcoming the stunting problem is quite adequate, as evidenced by the existence of various policies to deal with the stunting problem. These policies include Law Number 36 of 2009 concerning Health, Presidential Regulation Number 42 of 2013 concerning the National Movement for the Acceleration of Nutrition Improvement, Minister of Health Regulation Number 23 of 2014 concerning Efforts to Improve Nutrition and other laws made to support stunting management. Apart from that, the stunting problem is part of the national priority program of the National Medium Term Development Plan (RPJMN) 2020-2024 (Sholichin, 2019).

Efforts to handle stunting in Indonesia will of course be different from handling stunting in various countries. This is because the factors that cause stunting are also different. Several causes of nutritional problems in children in Indonesia include stunting in children due to lack of nutritional intake and health status (Ministry of National Development Planning/Bappenas, 2018), access to environmental sanitation facilities (Hasan & Kadarusman, 2019), parental knowledge (Adriany, Hayana, Nurhapipa, Septiani, & Sari, 2021). Factors related to nutritional problems include problems with access to nutritious food security, and factors related to the social environment, namely inappropriate child care patterns, health services, and environmental health, for example clean water facilities and sanitation provision (Hasanah et al., 2021)(Rahman, 2023).

d. The Relationship between Consuming Processed Moringa Leaves (Moringa Oleifera) and Stunting

Based on several journal analyzes it is clear that stunting is mostly caused by nutritional factors in several regions of developing countries, one of which is Indonesia. Some supporting research regarding processed Moringa leaves as a preventive measure for stunting is as follows:

1) Processed Moringa Leaves for Pregnant Women

According to research (Rotella et al., 2023) in his research entitled The Impact of Moringa oleifera Supplementation on Anemia and other Variables during Pregnancy and Breastfeeding: A Narrative Review explains that M. oleifera is a local food source that is abundant and rich in nutrients but is underutilized in low-income countries. It is grown commercially in various parts of the world, including India, Africa, South and Central America, Mexico, Hawaii, and throughout Asia and Southeast Asia. M. oleifera belongs to the Moringaceae family and is extensively studied and used

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for human and veterinary applications. This plant is drought resistant and can thrive in various types of soil and wet or dry areas. Almost all parts of the plant have the potential to be useful, including the seeds, leaves, flowers and pods, and each part is consumed for nutritional purposes. Moringa plant leaves are very nutrient dense and contain large amounts of essential amino acids, vitamins, and minerals, including calcium, iron, potassium, magnesium, and zinc.

They are also rich in vitamins A, B complex vitamins (B1, B2, B3), C, and E, and contain 17 fatty acids, including three polyunsaturated fatty acids (PUFA). Leaves are the part of the plant most often consumed for nutritional purposes and contain various bioactive compounds. Moringa is also recognized as a galactogenic herb because of its high content of macro and micro nutrients which stimulate milk production in breastfeeding mothers (Foong et al., 2020).

According to research (Pujiastuti et al., 2022), (Fungtammasan & Phupong, 2021), (Magtalas et al., 2023) because of its galactogenic properties, and scientific evidence proves its positive effect on breast milk production, supporting the growth and development of newborn babies. Moringa is considered a nutritious food supplement that can save human lives, especially in nutritionally poor countries. The studies included in this paper present moringa as a dietary supplement in various forms, including dried leaves, as leaf extract or food preparations, or combined with other supplements. In addition, Moringa leaves are a rich source of nutrients that are important for the growth and development of the fetus, as well as for maintaining the nutritional status of pregnant women, according to research (Nadimin et al., 2019).

In this study, the authors suggest that moringa supplementation may improve maternal, fetal, and infant health outcomes, making it a beneficial supplement during pregnancy and breastfeeding, particularly in low- and middle-income countries. During critical periods of pregnancy and postpartum,

Nutrition plays an important role in ensuring optimal health for mothers and children. Failing to provide adequate macronutrients or micronutrients during this time can lead to disease resulting in lifelong effects on neurodevelopment, as research illustrates (King et al., 2013). Therefore, optimizing maternal and infant nutritional intake is very important to improve maternal and infant health outcomes. Pregnancy and the postpartum period impose increased energy and nutrient requirements that are essential for optimal growth and development. Inadequate nutritional needs, even in small amounts, can have an irreversible negative impact on the health of the mother and baby. Thus, supplementing with micronutrients during pregnancy and breastfeeding is widely accepted, especially in developing countries where malnutrition is prevalent and has devastating impacts on the health and future of entire communities.

2) Processed Moringa Leaves for Children Aged 0-23 Months

According to research (Basri et al., 2021) entitled Effect of Moringa oleifera supplementation during pregnancy on the prevention of stunted growth in children between the ages of 36 to 42 months Moringa extract has active chemicals (phytochemicals) in the form of flavonoids, phytosterols, and steroids that have anti-inflammatory, anti-carcinogenic, anti-proliferative, and anti-viral functions. The phytochemical content in this extract protects the mother from diseases that can interfere with fetal growth during pregnancy. Therefore, administration of Moringa extract improves the nutritional status of the mother and affects placentation and the supply of nutrients from the mother to the fetus.

Apart from pregnant women, giving moringa to children also shows good results on their nutritional status during the toddler phase. The nutrients in Moringa are rich in protein, Ca, Fe, vitamin C, and carotene, and can be used as suitable crops in areas with a high prevalence of malnutrition. Previous research shows that giving moringa can overcome the incidence of

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malnutrition in children in their first year. Furthermore, research conducted by Andrew in the Arusha region showed that the use of moringa had a significant positive effect on children's nutritional status and was also able to reduce their morbidity rates.

This happens because the Vitamin C and Fe in Moringa act as antioxidants, including preventing free radicals that disrupt children's nutritional status. Also iron and other micronutrients play a role in increasing hemoglobin levels in children. Srikanth's research in India states that giving moringa to children could also be an alternative to overcome protein deficiency.

This shows the abundant contribution and function of protein in Moringa plants. This research also shows that there is no difference in the average consumption pattern of vegetables and fruit in each intervention group. Therefore, this supports an important role in the availability of children's nutritional supplies from birth. A study of nutritional supplementation in pregnant women has been conducted but the results of these interventions are still very mixed. In this 5-year study, various types of nutritional interventions were also implemented during pregnancy and there was greater attention to their impact on the growth of children between the ages of 0 and 5 years.

However, it has not provided significant results in reducing the incidence of stunting in children aged 36 to 42 months. Therefore, the results of this research can be a solution to the problem of nutritional intake for children and mothers in areas that have a high prevalence of stunted growth and anemia.

Examples of Processed Foods made from Moringa leaves

Authors	Title	Design	Sample	Result
(Putri et al., 2022)	Study of Making Cookies With The Addition Of Moringa Leaf Flour (Moringa Oleifera) And Mung Bean Seed Flour (Vigna Radiata)	This study used a completely randomized design with one treatment factor. Organoleptic tests were carried out using the hedonic method or the so-called preference test.	The sampling technique used probability sampling and obtained as many as 31 samples of students from the University of Bumigora.	The results of the organoleptic test or preference test on cookies products of Moringa leaf flour and mung bean seed flour in the Kruskal Wallis test for aroma, texture, and taste were significant for aroma (0.025), texture (0.000) and taste 0.001 ($p<0$ 0.05) which means that H1 is accepted, H0 is rejected, it is significant to the aroma, texture and taste. The highest protein content in treatment t3 with a combination of Moringa leaf flour and mung bean flour was 16.27%. Conclusion The organoleptic results obtained were significant on the aroma, texture and taste of Moringa leaf flour and mung bean flour cookies because $p<0.05$. The **highest protein content was obtained in treatment t3 which was 16.27%.**
(Rohmawati et al., 2023)	Training and Assistance in The Creation of *Je-Co Moringa* as a Stunting Overcome Effort	The method is carried out by providing training and making Je-Co Moringa as PMT and increasing the skills of posyandu	-	Knowledge increased after Emo Demo training and gave the impact of updating science and technology as evidenced by posyandu cadres being able to make and use the product.

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		cadres in making PMT innovations from local food ingredients, as well as training in changing parenting patterns of children under five in consuming healthy food with the Emo-Demo application. The application of science and technology applications to partners of Posyandu Cadres and mothers of toddlers in Sumbersalam Village is based on research on Moringa leaf jelly products and Moringa leaf cookies (Je-Co Moringa) that have been carried out.		
(Santi et al., 2021)	Moringa Chicken Nugget as Supplementary Food for Toddler to Prevent Stunting	The study was carried out as an experiment research. The research aimed to compare nutrient levels in chicken nugget as supplementary foods which modified without and with moringa leaves as a food supplement.	-	According to the research result, it could be concluded that nuggets with F2 (with Moringa leaves 20% of chicken composition) could be the supplementary foods for toddler to meet the needs of protein.
(Rumida et al., 2023)	The Effect of Addition of Various Food Ingredients on Acceptance and Protein Content of Cookies as PMT for Stunting Toddlers	The experimental research used a completely randomized design (CRD) for five treatments: formulations A, B, C, D, and E, with three repetitions. The acceptance test was also carried out on 15 stunted toddlers using the Comstock test (food scraps). The selected cookie formulations were tested for protein content using the Kjehdal method. Data analysis was continued using the variance analysis (ANOVA) test, followed by the Duncan method.	-	The results of the ANOVA test showed that cookies significantly influenced the level of aromatic aspect ($p=0.011$) and contained 12.91 grams of protein. Duncan's test showed significant differences in cookies' taste and aroma (treatments C and A). Treatment A, which has certain cookies' formulation and sensory characteristics, i.e., color, texture, taste, and aroma, contains higher protein and contributes to the adequacy of nutrition in children aged 3-5 years by 57.37%.

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(Saputri et al., 2022)	Substitution Pumpkin Flour (Cucurbita Moschata) And Moringa Leaf Flour (Moringa Oleifera) In Making Cookies As Alternative Snacnk For Stunting Toddlers	**The research method used a completely randomized experimental design with 4 formulations with codes F0, F1, F2, and F3.**	This research using a sample of untrained panelists in the sensory evaluation test, namely 30 panelists in Lopang Hamlet, Driyorejo District, using a simple random sampling technique.	The acceptability of cookies made from pumpkin flour and Moringa leaf flour as an alternative nutritious snack for stunting toddlers showed that the cookie product most liked by the panelists was F2 (75% sago flour, 23% pumpkin flour, 2% Moringa leaf flour).

CONCLUSION

1. Based on several journal analyzes it is clear that stunting is mostly caused by nutritional factors in several regions of developing countries, one of which is Indonesia. Some supporting research regarding processed Moringa leaves as a preventive measure for stunting.
2. Efforts to handle stunting in Indonesia will of course be different from handling stunting in various countries. This is because the factors that cause stunting are also different. Several causes of nutritional problems in children in Indonesia include stunting in children due to lack of nutritional intake and health status, access to environmental sanitation facilities, parental knowledge. Factors related to nutritional problems include problems with access to nutritious food security, and factors related to the social environment, namely inappropriate child care patterns, health services, and environmental health, for example clean water facilities and sanitation provision.
3. Based on several journal about Moringa oleifera leaves as a preventive foods for stunting showed that in Moringa are rich in protein, Ca, Fe, vitamin C, and carotene, and can be used as suitable crops in areas with a high prevalence of malnutrition. Moringa had a significant positive effect on children's nutritional status and was also able to reduce their morbidity rates. This happens because the Vitamin C and Fe in Moringa act as antioxidants, including preventing free radicals that disrupt children's nutritional status. Also iron and other micronutrients play a role in increasing hemoglobin levels in children.

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