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Stunting in Indonesian Children and Its Contributing Factors: Study through Bibliometric Analysis

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ABSTRACT: Children's stunting is a problem because it is associated with an increased risk of pain and death, suboptimal brain development resulting in late motor development, and inhibition of mental growth. This study aims to examine the factors that influence the occurrence of stunting and risk in children in Indonesia. The research method used is a traditional review. The results of the review found that many factors cause the high incidence of stunting in toddlers, including energy intake, birth weight, maternal knowledge level, family economic status, parental parenting, and food security. WHO estimates the prevalence of stunting worldwide at 22 percent or as many as 149.2 million in 2020. According to the Indonesian Nutritional Status Study (SSGI) results of the Ministry of Health, the prevalence of stunting in children under five in Indonesia reached 24.4% in 2021. The prevalence of stunting of toddlers in Indonesia continues to show a decline. In 2018 the prevalence of stunting toddlers was still 30.8%. Then, it dropped to 27.7 in 2019 and continued to fall to 24.4% in SSGI 2024. The government even targets to drop to 14% by the end of 2024. Furthermore, WHO also recommends reducing stunting by 3.9% per year to meet the target of 40% stunting reduction by 2025.

Keywords: Indonesian children; stunting data; causes of stunting; the prevalence of stunting

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1 INTRODUCTION

The problem of stunting has a huge impact on the future of toddlers in the world. Stunting can reduce toddler survival, school achievement, and economic productivity. Stunted children as adults will be at risk of producing less qualified human resources (Humphrey et al., 2019). In a healthy population, approximately 2.5% of children have a <-2 primary school z-score based on the child's growth curve. If it exceeds 2.5%, it indicates a growth problem (Leroy & Frongillo, 2019). Stunting is a condition of malnutrition status that is chronic during the period of growth and development since the beginning of life. Stunting is an obstacle caused by lack of nutrient intake and health problems Stunted children after calculation based on the z-score value of the height index according to the results <-2 standard deviations. Stunting describes a chronic malnutrition situation in children that takes time to develop and recover to a normal state of child height according to their age (Gibney et al., 2013).

Stunting is a nutritional problem in the world that is known to around 165 million toddlers in short conditions (stunting). Eighty percent of stunting toddlers are spread across 14 countries in the world and Indonesia is ranked as the fifth largest country with the number of stunting. (UNICEF, 2013). Stunting data in Indonesia shows that the prevalence of stunting nationally has increased from 35.6% (in 2010) to 37.2% (in 2013) and to 30.8% (in 2018), while data from the results of Nutritional Status Monitoring in 2017 showed that the percentage of stunting toddlers in the toddler group (29.6%) was greater when compared to the age of infant (20.1%) (Indonesian Ministry of Health, 2018). Linear growth in a child is the best overall indicator of a child's well-being and provides an accurate marker of the presence of differences in human growth and development. The fact tragically affects millions of children around the world who not only fail to reach their potential physical growth and mental development due to suboptimal health conditions and inadequate nutrition and care. They also suffer irreparable physical and cognitive damage accompanied by stunted growth (de Onis & Branca, 2016).

The Indonesian government through the Sustainable Development Goals (SDGs) program in its target is expected 2030 to end all forms of malnutrition, stunting reduction, and wasting in toddlers. (Sustainable & Goals, 2016). WHO also recommends reducing stunting by 3.9% per year to meet the target of 40% stunting reduction by 2025. Efforts have been made by the Government through Integrated Health Center, but it is less than optimal because it has not involved all aspects of society. Regeneration in the community is an important and strategic part to be involved in this activity because it is very close to mothers and the community (Martha et al., 2020). To reduce and deal with the problem of malnutrition, especially stunting, the government has issued several policies and regulations that are expected to contribute to the handling of stunting. The government's policy to overcome stunting in Indonesia by establishing five pillars and priorities for accelerating stunting prevention is commitment and vision leadership, national campaigns and communication of behavior change, convergence, coordination, and

consolidation of central, regional, and village programs, food security and nutrition, as well as monitoring and evaluation (Secretariat of the Vice President of Indonesia, 2021).

Focus on improving nutrition made to the first 1000 days of a life group at the global level called Scaling Up Nutrition (SUN). In Indonesia is known as the First 1000 Days of Life Movement (1000 HPK Movement). Specific interventions can start with the First 1,000 Days of Life (1,000 HPK) starting when the mother is pregnant, and the first 2 years of life is a period called the golden age where this period occurs rapid growth and development in the child. Nutritional intervention at 1,000 HPK will have a big impact because child growth and development occur very quickly.

Parental parenting, especially for a mother plays an important role in supporting efforts to overcome nutritional problems, especially in terms of family nutritional intake, ranging from food preparation, and selection of food ingredients, to food menus. Mothers who have good nutritional status will give birth to well-nourished children. The family's ability to meet food needs both in quantity and quality nutrition is very influential on the nutritional status of children. Based on the above problems, researchers are interested in carrying out a study entitled stunting in Indonesian children and its causative factors. This study aims to identify the causes of stunting in toddlers from the aspects of education, knowledge, maternal attitudes, and family economic status, as well as low birth weight.

2 THEORETICAL STUDY

The United Nations Children's Emergency Fund (UNICEF) states that more than half of 56% live ASIA-stunted children and more than one-third of 37% live in Africa. Children are categorized as stunted if their height is less than -3 Standard Deviation from the median. Child Growth Standards according to the World Health Organization (WHO) for the same age and sex categories. (da Silva et al., 2018). Stunting is a topic that needs the attention of all people considering the impact it causes. Stunted children can lead to increased morbidity, poor cognition ability, short stature, increased risk of perinatal and neonatal death, decreased productivity in adulthood, and increased chronic diseases (de Onis & Branca, 2016). In addition, the growth of the child reflects the conditions of the society of a country. Stunting that occurs in the golden age of children can be a subjective indicator of justice and community welfare (Aguayo & Menon, 2016).

The percentage of toddlers from very short to short ranging in age from 0-59 months in Indonesia increased in 2017, namely 9.8% and 19.8%. In 2018 the prevalence of stunting increased to 11.5% and 19.3%. The prevalence of stunting in toddlers in Indonesia is quite worrying. Nationally, the prevalence of stunting in 2018 was 30.8%. The World Health Organization (WHO) sets the number of public health problems not to exceed 20%. The problem of nutrition in Indonesia is quite severe and is characterized by many cases of malnutrition. Malnutrition is an impact on the state of nutritional status. One of them is malnutrition related to stunting. The prevalence of stunting in Indonesia is higher than that of countries in Southeast Asia, such as Myanmar (35%), Vietnam (23%), and Thailand (16%), and is ranked fifth in the world (Sutarto, 2018).

Malnutrition has an impact on the state of nutritional status both in the short and long term. Stunting is one of the malnutrition conditions related to nutritional insufficiency, so it is included in chronic nutritional problems. Stunting is measured as nutritional status by considering the height or length, age, and gender of the toddler. The habit of not measuring the height or length of a toddler's body in Indonesian society makes stunting difficult to realize. This makes stunting one of the focuses on the target of improving nutrition in the world until 2025 (Safitri & Nindya, 2017).

Stunting is caused by insufficient nutritional intake for a long time due to feeding that is not by nutritional needs. Stunting can occur starting from the fetus is still in the womb and is only visible when the child is two years old (Ministry of Health of the Republic of Indonesia, 2016). Stunting that has occurred if not balanced with catch-up growth results in decreased growth, stunting problems are public health problems that are associated with an increased risk of pain, death, and obstacles to growth both motor and mental. Stunting is shaped by inadequate growth faltering and catch-up growth that reflects the inability to achieve optimal growth. This reveals that the group of toddlers born with normal weight can experience stunting if the fulfillment of subsequent needs is not met properly (Ministry of Villages for Development of Disadvantaged Regions and Transmigration, 2017, Ministry of Health of the Republic of Indonesia, 2016).

According to WHO, public health problems can be considered chronic if the prevalence of stunting is more than 20 percent. This means that nationally, the problem of stunting in Indonesia is classified as chronic, especially in 14 provinces whose prevalence exceeds the national figure. Children who are stunted have an impact on stunted and irreversible growth. The impact of stunting can last a lifetime and affect the next generation. Children are the result of stunting by the complex interaction of household, environmental, socioeconomic, and cultural influences described in the WHO Conceptual Framework on stunted children (Stewart et al., 2013).

Parenting education activities are stated to be effective in improving maternal health literacy in stunting prevention. Thanks to the support of stakeholders and the attractiveness of the material, young mothers become more aware of how to prevent stunting in children. Some recommendations for further research include: (1) a standard category of stunting cases is needed in terms of the overall number of cases in each region; (2) it is necessary to have an instrument that measures the response of young mothers (users) to activities that have been carried out by community health centers; (3) it is necessary to involve family members, especially parents (father and mother); (4) it is necessary to play an active role from community health centers to assist in the process of implementing activities; and (5) each implementation is given a duration of time to make it more structured (Fitroh & Oktavianingsih, 2020).

Stunting has future consequences in children, namely low cognition, and physical development ability so it has an impact on preventing the child's capacity as an adult, stunting can have an impact on the child's productivity after adulthood. Stunted children range from a variety of degenerative diseases. The results of the study predicted the

impact of stunting on children, namely psychosocial and mental health losses in children will result in a loss of GDP of up to 300 trillion rupiahs annually.

3 METHOD

The method used in this study is a literature review study of various international and national journals. This method seeks to summarize the current state of understanding of a topic. This research uses a type of qualitative research with the traditional method of literature review. Based on Creswell's explanation, the literature review is a literature analysis of research topics that aims to inform readers about the results of other research related to current research, link research with existing literature, and fill gaps in previous studies. (Creswell, 2014).

This is done because researchers cannot conduct research directly in the field due to the *Corona Virus Covid-19* pandemic. The data type used is secondary data. The source of data in this literature review research was obtained through a trusted journal search site on Google Scholar from 2017 to 2021. A total of 6580 articles were obtained from the initial search through the Google Scholar database, then identified based on the title and abstract of the article obtained from 1250 articles. Furthermore, a full review of the suitability of the research topic was carried out in as many as 55 articles. The results of the review obtained articles that are not by the problem of stunting in Indonesian children and its causative factors so in the final stage only 10 articles can be obtained that match the research topic of this article.

In terms of analyzing articles, the method of analyzing the content of research articles obtained through trusted journal search sites with stunting criteria in Indonesian children and their causative factors include, (1) online research journals regarding the picture of stunting in Indonesia and the factors causing stunting events in Indonesia; (2) the online research journals used are within the last 4 years (2017 to 2021); (3) online research journals of national and international class; (4) and there is an ISSN (International Standard Serial Number) number in both the print and electronic versions, then there is a Digital Object Identifier (DOI) in the research journal. The researcher presented the stages of the literature review process as shown in figure 1.

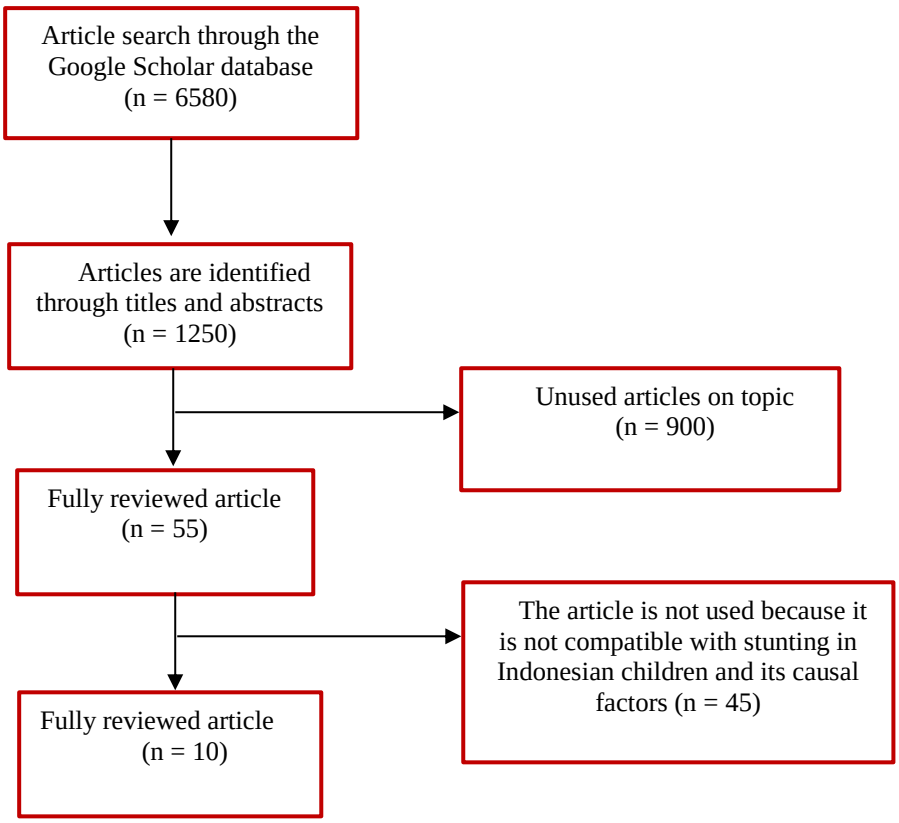

Figure 1. Stage of the *Literature Review Process*

To be able to build and visualize a bibliometric network indexed by Google scholar, a bibliographic field visualization application called Vos viewer is needed. The networks in question include journals, researchers, or individual publications. The network can be built on citations, bibliographic couplings, co-citations, or co-authorship relationships. In the world of research, Vos viewer is used to analyzing bibliometrics, finding the most used references in certain disciplines, finding research topics that have the opportunity to be researched, and much more (Effendy et al., 2021). The mapping obtained by Vos viewer can later be used as a reference in conducting accurate content analysis based on the name of the researcher, year of publication, researcher productivity, and research trends on stunting in Indonesia.

4 RESULT AND DISCUSSION

4.1 *Result*

Table 1. Results of Literature Review

No	Title, Author, and Journal	Research Objectives	Method	Result
1.	*Permasalahan Stunting dan Pencegahannya*. [Stunting Problems and Their Prevention.]	Looking at the problem of stunting in Indonesia and the rate of stunting reduction, as well as its prevention.	Study Literature. The analysis method used uses the analysis of the contents of this document journal. using online research journals obtained	The Indonesian government is passing the Sustainable Development Goals (SDGs) program in its target of being expected by 2030 to end all forms of malnutrition, reducing

No	Title, Author, and Journal	Research Objectives	Method	Result
	Kinanti Rahmadhita (Rahmadhita, 2020) Jurnal Ilmiah Kesehatan Sandi Husada https://akper-sandikarsa.e-journal.id/JIKSH Vol 11, No, 1, Juni 2020, pp; 225-229		through trusted journal search sites.	stunting and wasting in toddlers (Sustainable & Goals, 2016). Also, Indonesia who has joined the Scaling Up Nutrition (SUN) Movements.
2.	*Faktor-faktor yang Berhubungan dengan Kejadian Stunting pada Balita* [Factors Associated with Stunting in Toddlers] Asweros Umbu Zogara dan Maria Goreti Pantaleon (Zogara & Pantaleon, 2020) Jurnal Ilmu Kesehatan Masyarakat. 2020; 9 (2): 85 http://journals.stikim.ac.id/index.php/jikm	To analyze the factors related to stunting incidence in toddlers in Kairane Village and Fatukanutu Village, Amabi Oefeto District, Kupang Regency.	This study used a cross sectional design. The study sample was 176 people, with details of Kairane Village 44 toddlers and Fatukanutu Village 132 toddlers, who were selected by simple random sampling technique. The data analysis techniques used are univariate and bivariate analysis.	The results showed that the education of fathers and mothers, the number of family members, and maternal nutritional knowledge, as well as protein and carbohydrate intake were significantly related to the incidence of stunting in toddlers. While the work of fathers and mothers, as well as carbohydrate intake are not related. The results of this study can be used by relevant agencies to carry out various intervention actions to prevent the long-term impact of stunting on toddlers. Intervention measures can be carried out by increasing maternal nutritional knowledge and toddler food intake.
3.	*Faktor-faktor yang Mempengaruhi Kejadian Stunting pada Anak Usia Dini di Indonesia*.[Factors Influencing the Incidence of Stunting in Early Childhood in Indonesia] Muhammad Ridho Nugroho, Rambat Nur Sasongko, Muhammad Kristiawan (Nugroho et al., 2021)	Seeing what factors are related to the incidence of stunting in children aged 24-59 months in Indonesia so that appropriate interventions can be carried out in efforts to prevent and overcome stunting events.	The method used in this scientific writing is a literature study method with a descriptive analysis approach using a systematic review design	Seeing what causal factors are related to the incidence of stunting in children aged 24-59 months in Indonesia so that appropriate interventions can be carried out in efforts to prevent and overcome stunting.

No	Title, Author, and Journal	Research Objectives	Method	Result
	Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini Volume 5 Issue 2 (2021)			
4	Nutrition Intake and Diet of Stunted Children Aged 12-23 Months in Special Location Villages (Lokus) Cirebon Regency. Dwi Kusumayanti , Dewi Marhaeni Diah Herawati (Dwi Kusumayanti & Dewi M Diah Herawati, 2021) GIZI INDONESIA Journal of The Indonesian Nutrition Association www.persagi.org/ejournal/index.php/Gizi_Ind	To determine the nutritional intake and diet of stunted children aged 12-23 months in the locus village of Cirebon Regency.	The design of this study is a mixed method with a sequential explanatory strategy. Quantitative research to see the eating intake of stunted children while qualitative research is used to determine the diet of stunted children aged 12-23 months.	The nutritional intake of stunted children aged 12-23 months in the locus village of Cirebon Regency is not adequate for energy, protein, vitamin A, vitamin C, calcium, and zinc. The diet of stunted children aged 12-23 months in the locus village of Cirebon Regency is an unvaried menu, inappropriate feeding frequency, insufficient amount, undiverse types and irregular schedules than recommended. Nutritional intake has not met the needs of children, while the diet has not been in accordance with the standards of the Ministry of Health.
5	The Role of Parenting in Improving Maternal Health Literacy Against Stunt-ing in Bangkalan, Madura Siti Fadjryana Fitroh, Eka Oktavianingsih (Fitroh & Oktavianingsih, 2020) Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini Volume 4 Issue 2 (2020)	1) The effectiveness of parenting education programs to improve health literacy illustrated by the knowledge of young mothers regarding the nutritional status of 1000 HPK, and 2) Supporting and inhibiting factors during parenting education activities for young mothers as a preventive effort in stunting problems.	This research model is included in the category of mixed research (mixed method) with embedded experimental model. The respondents involved in this study were young mothers as many as 111 young mothers selected through purposive random sampling techniques. In this study is a one group pretest and postest design.	Parenting education activities are stated to be effective in improving maternal health literacy in stunting prevention. Thanks to the support of stakeholders and the attractiveness of the material, young mothers have become more aware of how to prevent stunting in children.
6.	Relationship between Mother's Knowledge about Feeding Patterns and Toddler Nutritional Status in the Work Area of the Gapura Health	To analyze the relationship between maternal knowledge about feeding patterns to the nutritional status of toddlers.	Observa-sional research with a cross-sectional design carried out in the working area of the Puskesmas Gapura, Sumenep Regency. A large sample of 30	The results of the study stated that there was a relationship between knowledge of feeding patterns and nutritional status of toddlers ($p < 0.05$)

No	Title, Author, and Journal	Research Objectives	Method	Result
	Center, Sumenep Regency Milda Riski Nirmala Sari, Leersia Yusi Ratnawati (Sari & Yusi Ratnawati, 2018) Amerta Nutr (2018) 182-188 https://e-journal.unair.ac.id/AMNT		toddlers with an age range of 24-60 months and their families, randomly selected from a total of 2,124 toddlers was recorded in the po-syandu working area of the Gapura Health Center. Maternal knowledge of feeding patterns as a primary source of data was obtained through interviews with parents or families of toddlers. The data were analyzed using the Chi-square statistical test.	
7.	Factors Associated with the Incidence of Stunting in Children Aged 24-59 Months in the Working Area of the Andalas Health Center, East Padang District, Padang City in 2018 Eko Setiawan, Rizanda Machmud, Masrul (Setiawan & Machmud, 2018) Jurnal Kesehatan Andalas. 2018; 7(2) http://jurnal.fk.unand.ac.id	Knowing the factors related to the incidence of stunting in children aged 24-59 months. .	This type of research is an observational analytical study with a cross sectional design. A total of 74 samples were selected by simple random sampling. The study was conducted from March to April 2018. Data collection was carried out by measuring height, interviewing, and filling out questionnaires. Bivariate analysis using Chi square and multivariate tests using multiple logistic regression tests.	The results showed that the proportion of stunting was 26.9 percent and normal was 73.1 percent. Chi square test results showed a meaningful relationship between energy intake levels, history of infectious disease duration, birth weight, maternal education level and family income level with stunting incidence.
8.	Nutrition and Stimulation Care for the Growth and Development Status of Toddlers Aged 12–36 Months Erliana Ulfah, Sri Endah Rahayuningsih, Herry Herman, Hadi Susiarno, Dida Akhmad Gurnida, Uni	Analyze the relationship of nutritional care and stimulation with the growth and developmental status of toddlers aged 12−36 months	Research methods quantitative using cross-sectional analytical research strategies, qualitative research using case study strategies. Quantitative sampling with proportion, multistage, and simple random sampling techniques. Qualitative samples use nonprobability sampling techniques	The mother's work and income are related to nutritional upbringing. There was no association of nutritional care with the growth and developmental status of toddlers aged 12−36 months. There was a stimulation relationship with the developmental status of toddlers aged 12–36 months.

No	Title, Author, and Journal	Research Objectives	Method	Result
	Gamayani, Hadyana Sukanda (Ulfah et al., 2018) Global Medical and Health Communication http://ejournal.unisba.ac.id/index.php/gmhc		with purposive sampling	
9.	Determinants of the Causes of Stunting in Aceh Province Determinants of Stunting Cases in Aceh Province Raisuli Ramadhan, Nur Ramadhan (Ramadhan & Ramadhan, 2018) SEL Jurnal Penelitian Kesehatan Vol. 5 No.2 https://ejournal2.litbang.kemkes.go.id/index.php/sel/issue/view/352	To identify the main factors associated with stunting in children under the age of five in Aceh.	The study used a survey method from the nutritional status monitoring section conducted in 2017 in Aceh Province with interview methods, weight measurement and height of children	Shows that the prevalence of stunting is 35.7% in children under five years of age. The risk factors for stunting are known to be exclusive breastfeeding, the value of the regression coefficient is 0.48, the unemployment value of the regression coefficient is 0.401 and the economic growth value of the regression coefficient is 0.188. The main cause of stunting is that exclusive breast-feeding has not been effective, while unemployment is not a significant factor in stunting.
10	Relationship between Food Security and Diarrheal Disease with Stunting in Toddlers 13-48 Months in Manyar Sabrangan Village, Surabaya Chovinda Ayu Safitri, Triska Susila Nindya (Safitri & Nindya, 2017) Amerta Nutr (2017) 52-61 https://e-journal.unair.ac.id/AMNT	To analyze the relationship of family food security and diarrheal diseases with stunting state of toddlers.	This study is an analytical ob-servational study with a cross-sectional design. The sample in this study was 68 toddlers aged 13-48 months in Manyar Sabrangan Village, Mulyorejo District, Surabaya City. Sample selection using simple random sampling with lottery technique.	The results showed that as many as 30.9% of toddlers were stunted, 19.1% had diarrhea, and 61.8% were in a state of food insecurity. Family food security and stunting conditions showed a significant relationship ($p<0.05$). Toddler diarrheal disease and stunting did not show a significant relationship ($p>0.05$).

Based on the results of the review of articles and journals collected, to reduce and deal with the problem of malnutrition, especially stunting in Indonesian children and the factors causing stunting. The number of incidences of stunting toddlers in the world is

very high. In 2017, the incidence of stunting in the world reached 150.8 million. The World Health Organization (WHO) estimates the prevalence of stunting worldwide at 22 percent or as much as 149.2 million in 2020. The total percentage of stunting worldwide can be seen in figure 2.

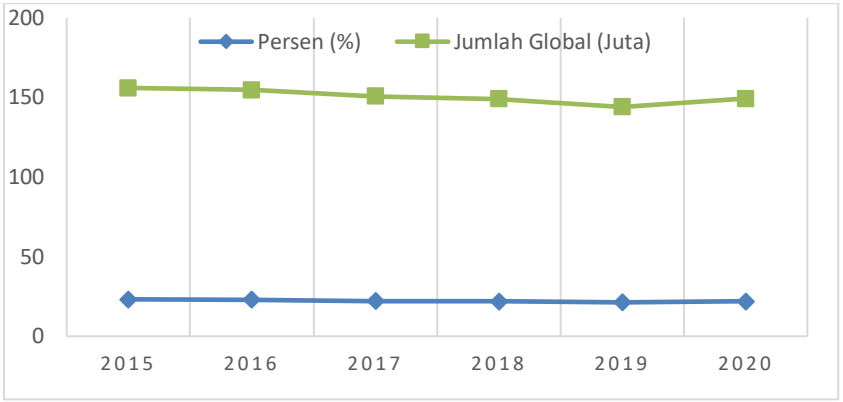

Figure 2. Graph of stunting prevalence worldwide

Then it can be seen in figure 3 that about half of the number of stunted children live in Asia and Africa. Although fewer stunted children live in the Americas, some countries in the region have the highest stunting prevalence rates found in Asia and Africa. For the Asian region, Southeast Asia occupies the second highest position in stunting cases reaching (14.9%) (Indonesian Ministry of Health, 2021).

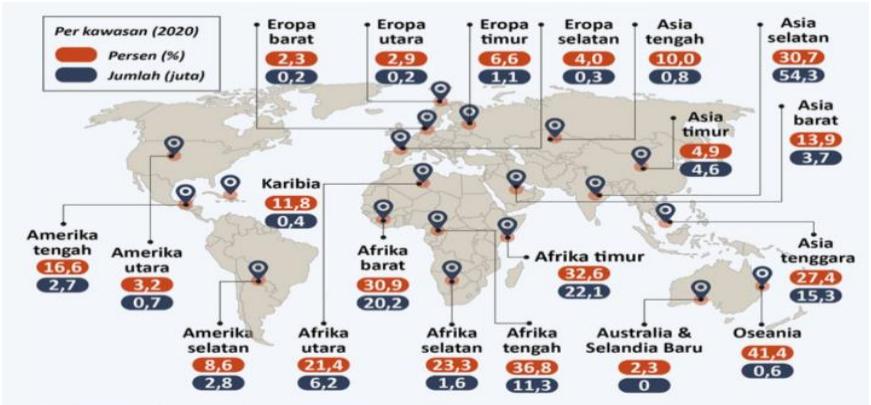

Figure 3. Distribution of stunting prevalence rates in the world

In Nigeria, the results showed stunting toddlers aged 0-23 months by 36.7 percent and aged 0-59 months by 21 percent. Other results showed moderate stunting toddlers in Bangladesh at 26 percent, in India at 24.3 percent, and in Nepal at 24.3 percent while the number of severely stunted toddlers in Bangladesh at 15.2 percent, in India at 23.7 percent, and in Nepal at 15.9 percent.

According to the Ministry of Health in 2021 the prevalence of stunting toddlers in Indonesia was 24.4%, meaning that almost a quarter of toddlers in Indonesia were stunted in 2021 during the end of covid-19. However, this figure is lower than in 2020 which is estimated to reach 26.9%. The government targets stunting in Indonesia to decrease to

14% by 2024. We can see this in figure 4 which illustrates the percentage of stunting prevalence in Indonesia from 2013 to 2024.

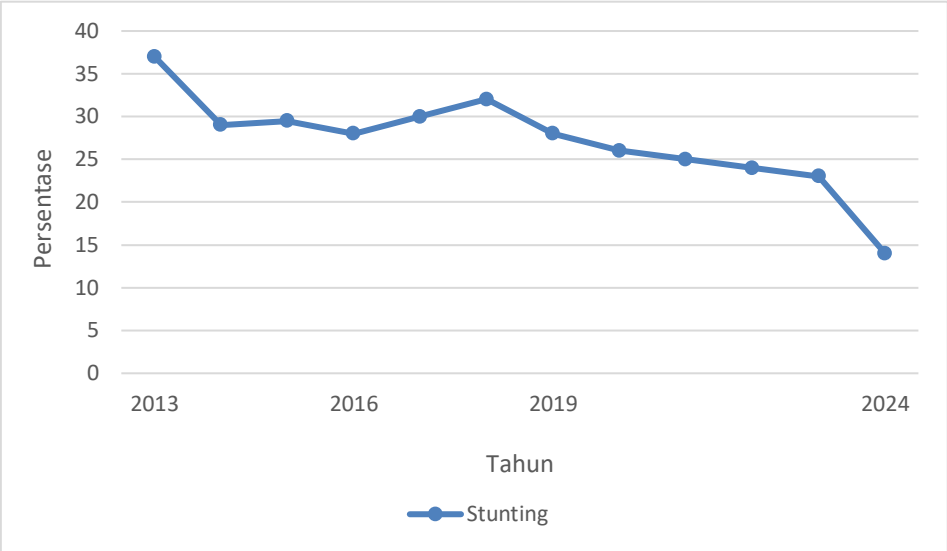

Figure 4. Graph of the percentage of stunting prevalence in Indonesia (2013 – 2024)

The results of the Indonesian Nutritional Status Study (SSGI) of the Ministry of Health, the prevalence of stunting for children under five in Indonesia reached 24.4% in 2021. This means that almost 1 in 4 toddlers are stunted. Thus, the prevalence of stunting in Indonesia is included in the moderate group according to World Health Organization (WHO) standards in the category of Stunting Prevalence as follows, (1) Prevalence of Stunting >= 40% = Very High; (2) Prevalence of Stunting 30-39% = High; (3) Prevalence of Stunting 20-29% = medium; (4) Prevalence of Stunting < 20% = Low. In some provinces, the prevalence of stunting of toddlers is still above 30%. The provinces are East Nusa Tenggara/NTT with a stunting prevalence of 37.8%, West Sulawesi at 33.8%, Aceh with 33.2%, West Nusa Tenggara/NTB at 31.4%, Southeast Sulawesi at 30.2%, and South Kalimantan at 30%. It can be seen in figure 5 illustrates the percentage of provinces with the highest stunting rates nationally (2021).

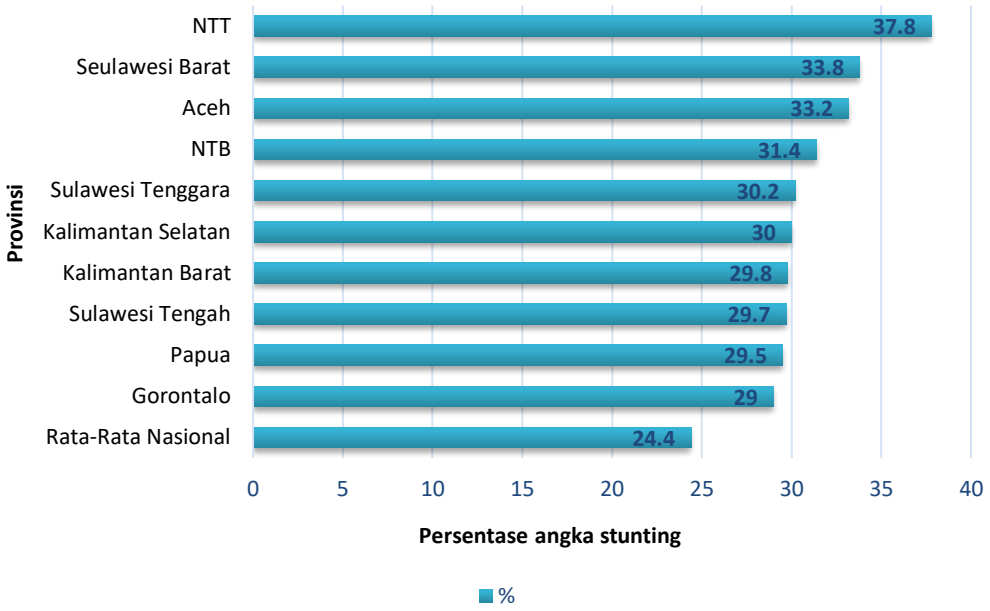

Figure 5. percentage of provinces with the highest stunting rates nationally (2021)

Meanwhile, it is also known that the prevalence in Bali Province, DKI Jakarta, and the Yogyakarta Special Region is recorded as the lowest. The prevalence of stunting of toddlers in Indonesia continues to show a decline. In 2018, the prevalence of stunting toddlers was still 30.8%. Then it continued to decline to 27.7 in 2019 and continued to fall to 24.4% in 2021. The government even targets to drop to 14% by the end of 2024. The decreased prevalence of stunting in Indonesia can be seen in the graph in figure 6.

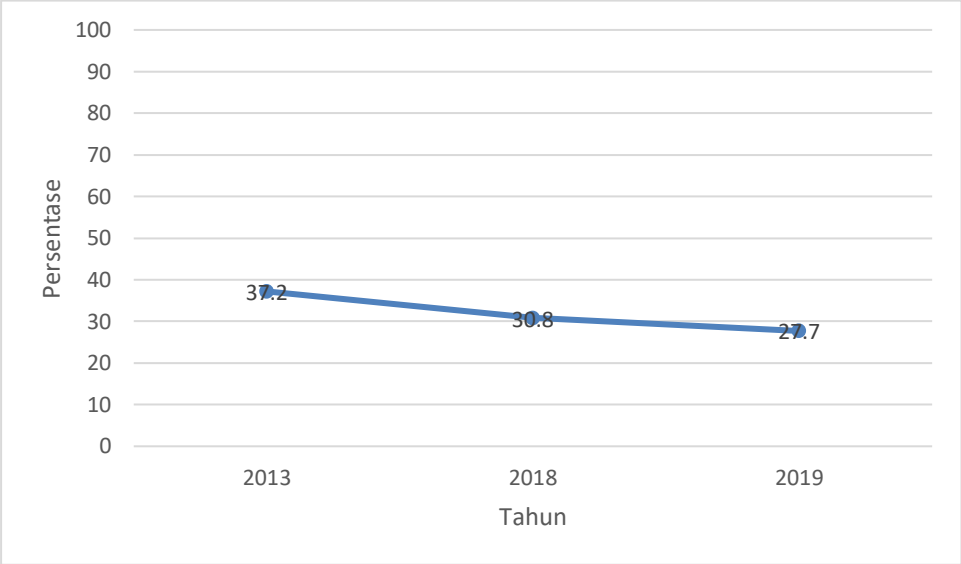

Figure 6. Graph of stunting decline in Indonesia in 2017 – 2019

According to the Indonesian Ministry of Health in 2018, stated that data on the prevalence of stunting toddlers in Indonesia is relatively high in regions throughout Southeast Asia. Indonesia's stunting data is ranked third in Southeast Asia. The incidence of stunting toddlers is the main nutritional problem faced by Indonesia to date. Currently,

Indonesia is one of the countries with a high prevalence of stunting compared to other middle-income countries. Even so, the prevalence of stunting toddlers shows a decrease, but this prevalence is still high relatively. From figure 6, overall, there has been progressing in reducing stunting even though millions of children still suffer from the functional consequences of stunting. At the national level, there is a large variation in stunting rates in Indonesian children.

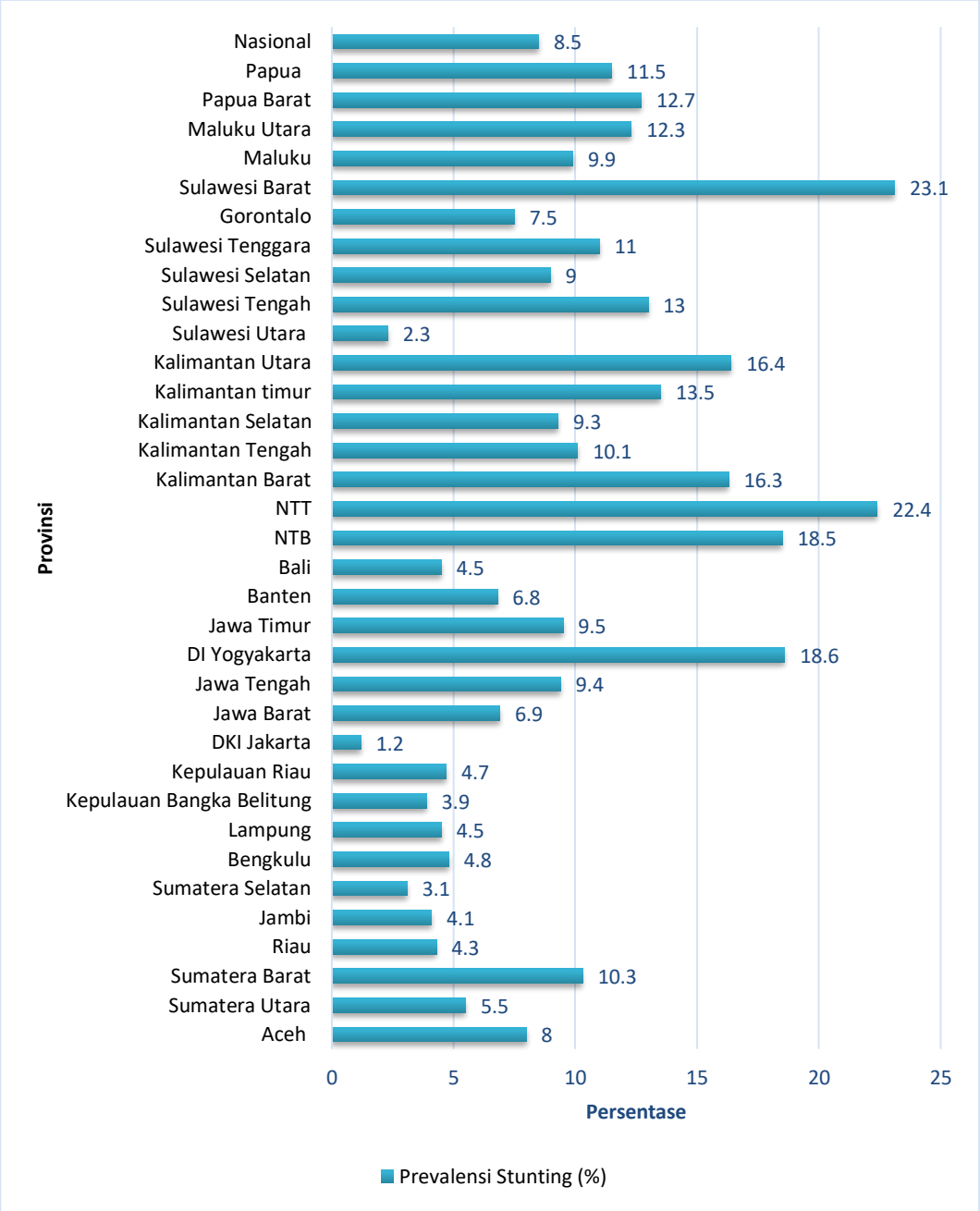

Figure 7. Distribution of stunting in each province in Indonesia in 2022

From the results of obtaining stunting distribution data for each province in Indonesia in 2022 which can be seen in figure 7, it shows that the prevalence of stunting in Aceh in 2022 will reach 8 percent of the number of toddlers in Aceh Province. This shows that

Aceh is classified as having a high prevalence rate. In 2021, based on the Indonesian Nutritional Status Study (SSGI) report, Aceh was ranked in the top 3 provinces with the highest stunting rate nationally 2021 with an average of 33.2% of children under five years old (toddlers) who were stunted. This means that approximately 1 in 3 toddlers in Aceh Province have a height below the average of children their age.

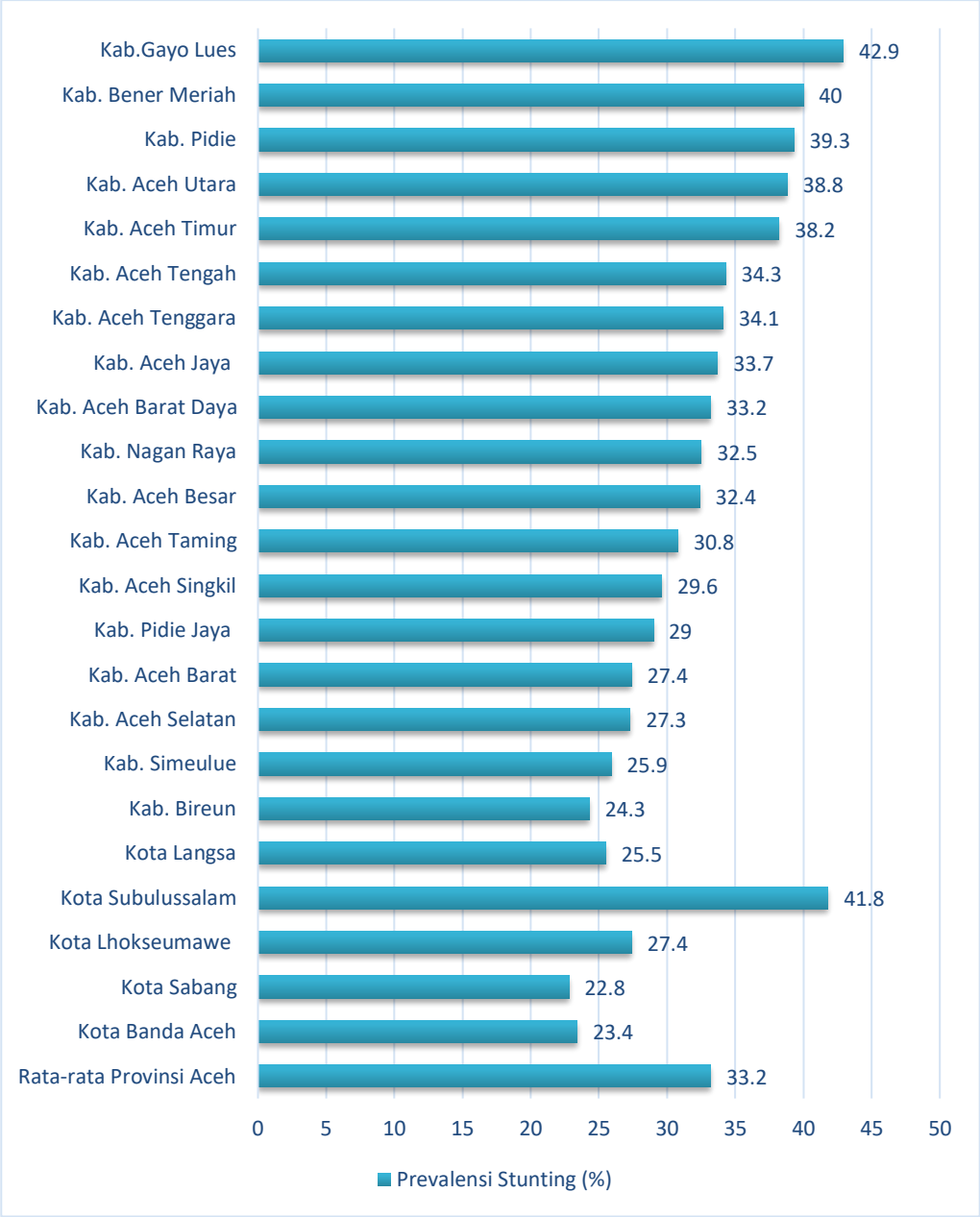

Figure 8. Prevalence of stunting in districts/cities of Aceh Province (2021)

Based on data obtained from the Central Statistics Agency in 2022 in figure 8, there are 3 regions in Aceh Province with the highest prevalence of stunting toddlers reaching around 40%. The three regions are Gayo Lues Regency (42.9%), Subulussalam City (41.8%), and Bener Meriah Regency (40%). Meanwhile, Banda Aceh City is recorded as the area with the lowest prevalence of stunting toddlers in the Porch of Mecca, which is 23.4%. After that, there is Sabang City with a prevalence of 23.8%, and Bireuen Regency

with 24.3%. In 2021 there are 10 regencies/cities in Aceh Province with a prevalence of stunting toddlers above the provincial average. Meanwhile, 13 districts/cities are below the provincial average.

The results of the literature review analysis found that the factors that cause stunting events are a lack of nutritional intake or foods containing carbohydrates, fats, and proteins as well as a history of exclusive breastfeeding. Toddlers who do not get enough nutrition are more at risk of stunting because the nutrients obtained from food sources contain the energy needed for the growth and development of children. The effect of exclusive breastfeeding on changes in stunting status is caused by the function of breast milk as an anti-infective. Non-exclusive breastfeeding for the first 6 months. Children who do not get exclusive breastfeeding in the first 6 months are more at risk of stunting. Breast milk is the best nutrient for newborns up to 6 months. For optimal growth of babies and adapted to the digestive abilities of babies 0-6 months is breast milk. The magnitude of the influence of exclusive breastfeeding on the nutritional status of children makes the WHO recommend that it implement interventions to increase breastfeeding for the first 6 months as one of the steps to achieve the WHO Global Nutrition Targets 2025 regarding reducing the number of stunting in children under five years old (WHO, 2014).

In addition, the effect of birth weight in infants on height growth is greatest at the age of the first 6 months. If in the first 6 months, the toddler can improve his nutritional status, then there is a possibility that the toddler's height can grow normally and avoid stunting events at a later age. Research cases in Nepal show that low birth weight has a 4.47 times greater risk of stunting than toddlers with normal birth weight. Birth weight is one of the indicators of health in newborns. Birth weight is a parameter that is often used to describe the growth of the fetus during pregnancy. Babies with low birth weight have a higher risk of becoming stunted (Paudel, 2012).

Low economic status is considered to have a significant impact on the likelihood of children becoming thin and short (UNICEF, 2013). Families with good economic status will be able to get better public services such as education, health services, road access, and others so which can affect the nutritional status of children. In addition, the spending power for families will increase so that family access to food will be better. Parents, especially mothers who get higher education, can do childcare better than parents with low education. Parents with lower education come more from families with low socioeconomic conditions, so it is hoped that the government will increase access to education for families with less socioeconomic. Intervention measures can be carried out by increasing maternal nutritional knowledge and toddler food intake. The local government through health workers can conduct counseling and counseling for mothers of toddlers about balanced nutrition. In addition, mothers can be taught local food processing that is cheap and easy to get high nutritional value.

4.2 *Discussion*

Each of the 10 articles was selected to be carefully read from the abstracts, objectives, and results of the study to collect information about stunting in Indonesian children and its causal factors. The findings of the study literature review obtained and classified into several categories are as follows:

4.2.1 *Nutritional Intake Rate*

Stunting is one of the challenges and problems of nutrition globally that is being faced by people in the world. The Ambitious World Health Assembly aims to reduce stunting by 40% worldwide by 2025. The Global Nutritional Report 2018 reports that there are around 150.8 million (22.2%) stunted toddlers which is one of the factors hindering human development in the world. The World Health Organization (WHO) has determined five sub-regions of stunting prevalence, including Indonesia in the Southeast Asia region (36.4%)(UNICEF, Levels, and Trends in child malnutrition – UNICEF whom The World Bank Join Child Malnutrition Estimates, 2019).

The biggest cause of stunting is the lack of nutritional intake which is influenced by parental parenting (Oswari, et al. 2016). Poor nutrient intake is in the intake of macronutrients and micronutrient intake which has an impact that can gradually inhibit the growth and development of toddlers. The macronutrients that are most often the cause of stunted growth in children are proteins. Protein is a macronutrient that plays a role in various other nutritional metabolism processes, especially helping the absorption of micronutrients that support the growth and physical development of babies. Micronutrients that are very influential in the incidence of stunting according to several studies and theories are zinc, iron, and folic acid. It affects cognitive development in toddlers (Riyadi et al., 2011).

Malnutrition that occurs at the beginning of childhood has serious consequences. Malnourished children are more likely to experience more severe pain. There is a strong association between childhood and child mortality. Skinny in children under five accounts for 4.7 percent or two million deaths of all deaths of children under five in the world. Malnourished children who escape death will become short adults, have a lower IQ, be hampered in economic productivity, and are at greater risk of having underweight offspring.

4.2.2 *Birth Weight*

Birth weight is the body weight of newborns at the time of birth which is weighed at the time of one hour after birth it is the most important anthropometry and is most often used at the time of newborn to see physical growth and nutritional status and diagnose normal babies, low birth weight and more birth weight (WHO, 2010). The classification of birth weight is divided into two, namely birth weight <2500 grams called low birth weight (BBLR), and birth weight ≥2500 grams called normal birth weight (WHO, 2010). In the study conducted by Setiawan & Machmud (2018), it was found that the body weight variable at birth had a signification value of $p = 0.016$ (OR = 13.7) which means

that birth weight is related to the incidence of stunting in children aged 24-59 months. Line with the study carried out by Rahayu et al., (2015) showed that birth weight in general is strongly associated with fetal mortality, neonatal and postconsonantal, infant and child morphic, and long-term growth and development. Babies who have a low birth weight will have a direct impact from generation to generation and children with BBLR will have fewer anthropometric measures in their camps.

4.2.3 *Parenting*

Stunting is influenced by behavioral aspects, especially in poor parenting practices in feeding practices for infants and toddlers. Education about reproductive health and nutrition for adolescents is the forerunner of the family until mothers-to-be understand the importance of meeting nutritional needs during pregnancy and stimulation for the fetus, as well as checking the womb four times during pregnancy is very important. Poor parenting is the result of an untimely marriage process where prospective parents have not received good education regarding this parenting style. Wrong parenting not only causes stunting which results in disturbing children's physical growth (short stature/dwarfism), but can also interfere with children's brain development, which of course will greatly affect ability and achievement in school, productivity, and creativity at a productive age (Ministry of Health, 2021).

Inadequate nutritional care and stimulation in the early days of a child's life, especially children aged 1–3 years, have an impact on suboptimal growth and development. At that age, the child grows and develops rapidly. The role of parents in the parenting process is very important, especially in meeting the basic needs of the child (hone, foster, compassion), one of which is nutritional care and stimulation (Ulfah et al., 2018). The results of a study conducted by Sari et al., (2018) stated that there is a relationship between feeding practices for toddlers and nutritional status. Feeding practices are related to the quality of food consumption which will ultimately increase the adequacy of nutrients. The level of adequacy of nutrients is one of the factors that can affect the nutritional status of toddlers. Similarly, research conducted by Ohyver found a link between parenting and stunting. Feeding behavior in a child is influenced by the mother's nutritional knowledge (Ohyver et al., 2017).

4.2.4 *Mother's Knowledge Level*

Maternal knowledge indirectly also affects the health status of the mother, the fetus conceived, and the quality of the baby to be born. So far, efforts to improve nutrition are carried out when the mother is pregnant so that it will be better for nutrition education, especially in stunting prevention, to be carried out when the mother is not pregnant and will prepare for her pregnancy (Djauhari T, 2017). Health literacy for mothers is very important, especially regarding nutrition and child health, considering the rampant cases of stunting that afflict children in Indonesia (Fitroh & Oktavianingsih, 2020). The results of a study conducted by Muche, et al., (2021) concluded that emphasis should be given by relevant bodies to intervene in stunting problems by improving maternal education,

promoting girls' education, improving household economic status, promoting child feeding practices according to context, improving maternal nutrition education and counseling, and improving sanitation and hygiene practices.

Children who are born healthy and grow well will become a generation that can support the successful development of a nation. Empowering women in the family through increased education and nutritional knowledge is one way to reduce the risk of stunting (Rosha et al., 2016). Nutritional knowledge in mothers is one of the factors that have a significant influence on the incidence of stunting (Handayani et al., 2017). Therefore, efforts to overcome stunting can be done by improving nutrition improvement through increasing maternal knowledge.

4.2.5 *Family Economic Status*

According to a survey conducted by Musheiguza et al., (2021), the difference between the distribution of the wealth index (average contribution> 84.7%) and the length of maternal schooling (average contribution> 22.4%) has a positive impact on the incidence rate of stunting. The difference in wealth index and maternal education has increased the contribution to stunting incidence rates, reducing stunting in poor communities requires initiatives that must be started on the distribution of social services including maternal and reproductive education in women of childbearing age, water, and health facilities in remote areas. In a study conducted by Ramadhan and Nur (2018) unemployment greatly affects the fulfillment of family needs such as meeting nutritious food needs due to the absence of income to buy these foods. Malnutrition is often part of a circle that includes diet, poverty, and disease. These three factors are interrelated so that each contributes to the other.

4.2.6 *Food Security*

Food is one of the things that humans need to survive. Food security refers to the ability of individuals or groups to fulfill access to food that is good enough in terms of economy, physique and comfort, and nutrition to meet their needs to live a healthy and good life. (FAO, 2018). The results of research conducted by Safitri and Nindya (2017) stated that there is a significant relationship between food security and stunting in toddlers aged 13-48 months with a value ($p = 0.01$). Food scarcity in the family for a long time can affect food consumption by reducing the quantity and quality of food to family members, especially in toddlers who are continuous, so that there are insufficient nutrients needed by the body and hurt the growth of toddlers, especially toddler height. (Chaparro, 2017). Thus, the WHO conceptual framework effectively identifies stunting in Indonesian children from the available literature, thus providing sufficient insight into the application of which interventions are best. Given the geographical and cultural diversity in Indonesia, the factors influencing stunting in children vary geographically and spatial analysis of the strongest determinants will help identify where to focus interventions and how interventions can be adapted regionally.

5 CONCLUSION

The results of this study found can be concluded that the factors causing stunting in developing countries consistently are nutritional intake in children, low birth weight (BBLR), parental parenting, maternal knowledge, family socioeconomic status (family income), and food security. Therefore, efforts made to promote the education and knowledge of parents help to improve the nutritional status of children by empowering women to lead to better parenting practices towards children. In addition, improving the economic status of the family is important for better nutritional intake and improving the nutritional status of the child through the consumption of foods relevant to health and nutrition. Interventions made to prevent stunting in toddlers must become a culture in community life and their implementation requires cross-sectoral involvement. It is expected that the stunting rate will continue to decline from time to time so that all the designs that have been made by the government produce good results. The decrease in the prevalence rate of stunting means that the community and the government have succeeded in carrying out interventions that have been implemented together.

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