Jurnal Kesehatan
Vol. 18, No. 3, December 2025, pp. 326~342
p-ISSN: 1979-7621, e-ISSN: 2620-7761, DOI: 10.23917/jk.v18i3.2852

Risk Factors for Stunting in Toddlers of Fishermen Families in the Coastal Area of Mojo Pemalang

Ayu Dwi Indah Lestari[1*], Irwan Budiono[2]

[1] Nutrition Study Program, Faculty of Medicine, Semarang State University
[2] Nutrition Study Program, Faculty of Medicine, Semarang State University

How to Cite: Lestari, A. D. I., & Budiono, I. Risk Factors for Stunting in Toddlers of Fishermen Families in the Coastal Area of Mojo Pemalang. Jurnal Kesehatan, 18(3), 326–342. https://doi.org/10.23917/jk.v18i3.2852

Article Information

Article History:
Submission: 29 September 2023
Revision: 31 October 2023
Reception: 07 November 2023

Keywords: *Toddlers, Factors, Fishermen, Stunting*

ABSTRACT

Introduction: Stunting is a condition of growth failure caused by the accumulation of inadequate nutritional intake during pregnancy until the baby reaches 24 months of age. The incidence of stunting in Indonesia is still a dominant nutritional problem, especially in coastal areas. This study aims to determine the factors that influence the incidence of stunting in toddlers of fishermen families. **Methods:** This study was conducted from May to June 2023. The type of research is quantitative observational analytic with case control design. The number of samples in the study were 60 toddlers of fishing families aged 24 - 59 months. The technique of determining the sample with purposive sampling. The research instruments were microtoise, interview with questionnaire, SQ-FFQ (Semi Quantitative Food Frequency Questionnaire) sheet, and observation sheet. Analysis was done by univariate analysis, chi-square test and multiple logistic regression test. **Results:** There is a relationship between exclusive breastfeeding history, energy adequacy level, protein adequacy level, father's occupation, family income, fishermen's work group, and access to clean water with the incidence of stunting in toddlers of fishermen families. The results showed that the level of protein adequacy had the strongest influence with an OR value of 68.167. **Conclusion:** This study suggests that people in coastal areas are advised to consume food intake with balanced nutrition, consume foods with protein sources such as fish, create a clean and healthy environment, and improve the health status of toddlers.

Corresponding Authors: (*)
Nutrition Study Program, Faculty of Medicine, Semarang State University, Semarang, Jl. Kelud Utara III No. 15, Petompon, Semarang 50237, Indonesia
Email: adlindahh123@students.unnes.ac.id

INTRODUCTION

Toddler age is an age that requires more attention in growth and development because toddlers are one of the vulnerable groups in experiencing nutritional problems with irreversible nature (Cameron et al., 2021). One of the nutritional problems that are prone to occur in toddlers is stunting. Stunting is a condition of growth faltering caused

by the accumulation of inadequate nutritional intake from pregnancy until the baby reaches 24 months of age (Ramdaniati & Nastiti, 2019). In the anthropometric standard for assessing the nutritional status of children, stunting nutritional status is based on the *PB/U* or *TB/U* index (Indonesian Ministry of Health, 2020).

The United Nations Children's Fund (UNICEF), World Health Organization (WHO) and The World Bank (2021) noted that globally, 144 million (21%) children under the age of 5 are stunted. Stunting is a nutritional problem that is the focus of the Indonesian government's health development program. Reducing the prevalence of stunting in children under five years old is a key target of the National Medium-Term Development Plan 2020 to 2024. Based on the Indonesian Nutrition Status Study (2022), 1 in 4 Indonesian toddlers experience stunting nutrition problems with an average national percentage of 21.6%. The prevalence of stunting in Central Java, SSGI recorded 20.80% while Pemalang Regency's prevalence rate was below the Central Java percentage of 19.8%.

The incidence of stunting in the coastal area of Pemalang is still quite high, one of which is in the Mojo Health Center area. Based on preliminary studies conducted at the Mojo Health Center, the number of toddlers in Mojo Village in February 2023 was 678 toddlers with 326 toddlers aged 24 to 59 months and 139 of them came from fishing families. Data from the Mojo Health Center in 2023, the prevalence of stunting in fishing families in this area is 17.3%.

According to research, 32.14% of the 16.42 million coastal communities are still below the poverty line with incomes that are still below the average monthly expenditure. (Rusmil et al., 2019). Low family income results in poor childcare practices, resulting in a high risk of obstacles in the growth and development of children under five. The fishermen's working group is a grouping of fishermen based on the number of people at sea. The fishermen working group can be divided into individual fishermen, joint business group fishermen, and company fishermen (Sabihaini et al., 2020). The fishermen's work group affects the frequency of income generated. Based on research, families with an average income below the minimum wage have a higher risk of having stunted children.

Many previous stunting studies have shown that stunting is not only caused by one factor but is caused by several interrelated factors (UNICEF, 2020). Factors that affect stunting are divided into 2, namely direct causes and indirect causes (Bappenas, 2018). Direct causes have a direct impact on the incidence of under-five stunting such as LBW, gender, non-optimal nutritional intake, not obtaining exclusive breastfeeding, and health status related to diarrhea and ARI infections. While indirect causes are related to the availability and affordability of nutritious food, social environment (education and employment of parents), family income, health environment such as access to health services, residential environment (environmental sanitation and access to clean water). (Bappenas, 2018)(Mugianti et al., 2018)(Nirmalasari, 2020) (Rosha et al., 2020)(UNICEF/WHO/WORLD BANK, 2021).

Inadequate macronutrient intake will increase the risk of stunting, which will affect the slow growth and cognitive development of toddlers. In coastal areas, the dominant risk factor is related to protein intake. In fact, coastal communities have a great opportunity to consume fish as a food ingredient that has protein and fat content that can reduce the risk of stunting (Femidio & Muniroh, 2020). Based on research, toddlers have a 4 times greater risk of stunting if the level of protein adequacy is low (Yuliantini et al., 2022).

Environmental conditions also play an important role in the incidence of stunting (Rahayu & Darmawan, 2019). Poor environmental conditions such as unhealthy latrines and difficult access to clean water are risk factors for stunting.

Improper family latrines are caused by not burying fecal waste which can invite rats and flies which will affect environmental health (Utama et al., 2019). Meanwhile, unfit/contaminated water is certainly at risk of causing various diseases such as typhoid, hepatitis, diarrhea, and so on (Ramdaniati & Nastiti, 2019).

Based on the description above, the current situation that occurs is the lack of data on factors that affect the incidence of stunting in fishermen's families. Therefore, it is necessary to conduct a study related to this problem. This study aims to analyze the Risk Factors for the Occurrence of Stunting in Toddlers of Fishermen Families in the Coastal Area of Mojo Pemalang.

LITERATURE REVIEW

Studies say that stunting is a nutritional deficiency over a long period of time, starting during the life of the fetus in the womb. In the "Social Action Plan to Reduce Stunting", stunting occurs due to several factors such as direct causes related to nutritional intake, exclusive breastfeeding, health status, while indirect causes are related to environmental factors (access to clean water, environmental sanitation, health services (access to health services)) (Bappenas, 2018).

The problem of stunting also occurs in fishing families. Studies say that fishermen are people who are generally below the poverty line with less income and traditional behavior in terms of skills, psychology and mentality. This results in poor parenting patterns and causes nutritional problems such as stunting (Ahmad Rizal et al., 2022). Another factor that affects stunting in fishermen's families is the level of protein adequacy. Research conducted by Syabandini (2018), the results showed that the majority of toddlers from fishermen's families did not like to eat fish and other side dishes, causing low protein intake. Meanwhile, in Wilda's research (2021) at the Soropia Sulawesi Health Center, protein intake did not have a significant relationship with the incidence of stunting. Toddlers in the Soropia Health Center area have adequate protein intake because they like to eat high-protein foods such as fish and eggs.

Malnutrition in children not only creates the problem of stunting but also creates obstacles in children's intelligence, the risk of non-communicable diseases and reduced productivity (Nelson, 2017). The short-term impact of stunting causes failure of growth and development of cognitive, motor and metabolic disorders. The long-term impact for stunted children is to permanently reduce neural growth, thus affecting their productivity as adults (Jakub et al., 2017).

METHOD

This research used an analytic observational method with a case control research study design. This research was conducted in the Coastal Area of Mojo Pemalang. The population in this study was 139 toddlers. The subjects in this study were 60 toddlers who were calculated using the Lameshow formula. Sampling technique with purposive sampling. The sample consists of two groups, namely the case group and the control group. The case group consisted of 30 toddlers aged 24 to 59 months with a z-score value for the TB / U index < -2 SD (stunting) and the control group consisted of 30 toddlers aged 24 to 59 months with a z-score value for the TB / U index > -2 SD (normal) based on the WHO Child Growth Standard with different inclusion and exclusion criteria between groups. The independent variables in this study were low birth weight (LBW), fishermen status, family income, exclusive breastfeeding history, energy adequacy level, protein adequacy level, history of ARI disease, history of diarrhea disease, access to clean water, and fishermen

work group. While the dependent variable is the incidence of stunting. The types of data in this study are primary data and secondary data.

The instruments in this study were microtoise, interview with questionnaire, SQ-FFQ (Semi Quantitative Food Frequency Questionnare) sheet, and observation sheet. Height measurements were taken using a microtoise with an accuracy of 0.1 cm. The data obtained were then processed using statistical test applications with univariate analysis, bivariate and multivariate analysis. Bivariate analysis was used to see the relationship between variables and the magnitude of risk (Odd Ratio) using the Chi-square test with a 95% confidence level or α = 0.05 and the Fisher Exact Test as an alternative. Multivariate analysis used multiple logistic regression test. This study has received ethical approval with code number 321/KEPK/EC/2023.

RESULTS AND DISCUSSION

Mojo Pemalang Coastal Area Mojo is a village in Ulujami sub-district, Pemalang, Central Java. It is located on the north coast. Mojo village consists of 4 hamlets, namely Mojo (southern area or government center), Sigedang, Karangsambung, and Perumnas. Based on the data from the univariate analysis of toddler characteristics, it shows that there are 30 toddlers (50%) experiencing stunting, while toddlers who do not experience stunting are 30 toddlers (50%). The gender of toddlers is dominated by women with a total of 36 toddlers (60%) and men as many as 24 toddlers (40%). The subjects of this study were toddlers aged 24 - 59 months. Based on the results of univariate analysis, the number of toddlers aged 24 - 35 months was 18 toddlers (30%), toddlers aged 36 - 47 months with a total of 24 toddlers (40%), and the number of toddlers aged 48 - 59 months was 18 toddlers (30%) (Table 1).

Table 1. Frequency Distribution of Research Subject Characteristics

Variables	Category	Frequency (n)	Percentage (%)
Incidence of Stunting	Stunting	30	50.0
	Not Stunting	30	50.0
Gender	Female	36	60.0
	Male	24	40.0
Age	24 - 35 months	18	30.0
	36 - 47 months	24	40.0
	48 - 59 months	18	30.0
LBW	< 2500 grams	2	3.3
	≥ 2500 grams	58	96.7
Exclusive breastfeeding history	Not exclusively breastfed	26	43.3
	Exclusive breastfeeding	34	56.7
History of URI disease	Never suffered from URI	59	98.3
	Have ever suffered from URI	1	1.7
History of diarrhea	Never had diarrhea	55	91.7
	Have ever suffered from diarrhea	5	8.3

Birth Weight (LBW) in toddlers of fishermen families is mostly born with normal birth weight (≥ 2500 grams) with a total of 58 toddlers (96.7%) while babies with low birth weight (< 2500 grams) only amounted to 2 toddlers (3.3%). In the exclusive breastfeeding history variable showed that as many as 26 toddlers (43.3%) did not get exclusive breastfeeding and there were 34 toddlers (56.7%) getting exclusive breastfeeding. Furthermore, the history of ARI disease is dominated by toddlers who have never

experienced Acute Respiratory Infection (ARI), totaling 59 toddlers (98.3%) while there are 1 toddler (1.7%) who have suffered from Acute Respiratory Infection (ARI). In the variable history of diarrhea disease, there were 55 toddlers (91.7%) never suffered from diarrhea disease, and there were 5 toddlers (8.3%) had suffered from diarrhea disease (Table 1).

The results of the univariate test analysis in Table 2. the frequency distribution of risk factors associated with the incidence of stunting in toddlers shows that, in the variable level of energy adequacy, in the category of insufficient adequacy there are 29 toddlers (48.3%), while in the category of sufficient adequacy, there are 31 toddlers (51.7%). In the protein adequacy level variable, the results showed that at the insufficient level there were 22 toddlers (36.7%) and at the adequate level there were 38 toddlers (63.3%). Furthermore, in the fishermen status variable in the fishermen laborer profession group, there were 31 toddlers (51.7%) and in the owner fishermen profession group there were 29 toddlers (48.3%).

Table 2. Frequency Distribution based on Research Variables

Variables	Category	Frequency (n)	Percentage (%)
Energy Adequacy Level	Less	29	48.3
	Simply	31	51.7
Protein Sufficiency Level	Less	22	36.7
	Simply	38	63.3
Fisherman Status	Fisherman Labor	31	51.7
	Owner Fisherman	29	48.3
Family Income	Low	25	41.7
	High	37	58.3
Fishermen Working Group	Individual	22	36.7
	Group	38	63.3
Clean Water Access	Not Eligible	26	43.3
	Eligible	34	56.7

In the family income variable, there were 25 children under five (41.7%) at the low-income level and 37 children under five (58.3%) at the high-income level. In the fishermen work group variable, there are 22 toddlers (36.7%) in the form of individuals and 38 toddlers (63.3%) in the form of groups. In the clean water access variable, there are 26 toddlers (43.3%) who do not get clean water while there are 34 toddlers (56.7%) who get access to clean water.

Low Birth-Weight

Low Birth Weight Infants (LBW) are babies who have a birth weight of less than 2.5 kilograms. Based on table 3. the results of the bivariate test analysis, it was found that the p value of the test results using the Chi Square test for the Low Birth Weight variable was 0.492 (p-value> 0.05). In this study, only 2 out of 30 stunted toddlers had low birth weight, so there was no significant relationship between LBW and the incidence of stunting in toddlers of fishing families in the Mojo Pemalang Coastal Area.

In this study, the birth weight of babies was categorized into two, namely babies with birth weight <2.5 kilograms (low) and ≥2.5 kilograms (normal). Infants with low birth weight have digestive tracts that are not yet functioning properly, so digestive disorders arise and result in the body not being able to absorb nutrients properly (Windasari et al., 2020). In addition, babies will be susceptible to infection so that there is a delay in growth and development compared to normal born babies.

This study is in line with research conducted by Windasari, (2020) resulting in a chi- square test, a p value of 0.172 so that the history of LBW has no relationship with the incidence of stunting in toddlers in the Talamate Health Center working area. Another study showed the same thing, namely research conducted at the Gabus II Health Center on toddlers aged 24-59 months with the results of LBW (p = 0.319, OR = 1.647) had no relationship with the incidence of stunting (Astutik, 2018).

Table 3. Bivariate Test Analysis Results

Variables	Stunting				Total		P-value	OR	95% CI
	Stunting		Not Stunting						
	n	%	n	%	N	%			
LBW									
< 2500 grams	2	3.3	0	0.0	2	3.3	0.492	-	-
≥ 2500 grams	28	46.7	30	50	58	96.7			
Exclusive breastfeeding history									
Not exclusively breastfed	22	36.7	4	6.7	26	43.3	0.000	17.875	4.738 – 67.434
Exclusive breastfeeding	8	13.3	26	43.3	34	56.7			
History of ARI									
Never suffered from URI	29	48.3	30	50	59	98.3	1.000	-	-
Have ever suffered from URI	1	1.7	0	0	1	1.7			
History of Diarrhea Disease									
Never had diarrhea	25	41.7	30	50	55	91.7	0.424	2.800	0.498 - 15.734
Have ever suffered from diarrhea	5	8.3	0	0	5	8.3			
Energy Adequacy Level									
Less	25	41.7	4	6.7	29	48.3	0.000	32.500	7.818 - 135.104
Simply	5	8.3	26	43.3	31	51.7			
Protein Sufficiency Level									
Less	20	33.3	2	4.4	22	36.7	0.000	28.000	5.525 - 141.912
Simply	10	16.7	28	46.7	38	63.3			
Fisherman Status									
Fisherman Labor	23	38.3	8	13.3	31	51.7	0.000	9.036	2.802 - 29.134
Owner Fisherman	7	11.7	22	36.7	29	48.3			
Family Income									
Low	19	31.7	6	10	25	41.7	0.002	6.909	2.160 - 22.098
High	11	18.3	24	40	35	58.3			
Fishermen Working Group									
Individual	17	28.3	5	8.3	22	36.7	0.003	6.538	1.967 - 21.739
Group	13	21.7	25	41.7	38	63.3			
Clean Water Access									
Not Eligible	20	33.3	6	10	26	43.3	0.001	8.000	2.475 - 25.860
Eligible	10	16.7	24	40.0	34	56.7			

Based on the results of the multivariate test analysis with multiple logistic regression test, it was found that the most dominant risk factor was the level of protein adequacy. Toddlers in fishing families who have a low level of protein adequacy have a 68.167 times greater risk of stunting compared to toddlers in fishing families with sufficient protein adequacy.

Table 1. Results of Multivariate Test Analysis

Variabel	*p-value*	OR	Wald	CI (95%)	
				Lower	*Upper*
Exclusive Breastfeeding History	0.011	0.017	6.416	0.001	0.397
Father's work	0.584	0.291	0.300	0.003	24.132
Fishermen working group	0.289	0.198	1.124	0.010	3.949
Family income	0.569	5.5565	0.325	0.015	2041.909
Access to clean water	0.764	0.546	0.090	0.100	28.646
Energy sufficiency level	0.074	13.552	3.191	0.776	236.591
Protein adequacy rate	0.006	95.439	7.409	3.583	2542.337

Table 2. Results of the Multivariate Analysis Test Step 5

Variabel	*p-value*	OR	Wald	CI (95%)	
				Lower	*Upper*
Exclusive Breastfeeding History	0.002	0.014	9.213	0.001	0.218
Energy sufficiency level	0.015	17.750	5.859	1.729	182.255
Protein adequacy rate	0.005	68.167	9.185	3.693	1258.279

Exclusive breastfeeding

Exclusive breastfeeding is understood as the provision of breast milk for 6 months without additional liquids such as formula, water, tea and solid foods such as porridge, bananas, and biscuits (Sampe Sr et al., 2020). Based on the bivariate test results in the table, the chi-square test results show a p-value of 0.000 (p-value <0.05) which can be concluded that there is a significant relationship between exclusive breastfeeding and the incidence of stunting in toddlers of fishing families in the Mojo Pemalang Coastal Area. The odds ratio value on this variable is 17.875 which indicates that toddlers from fishermen families who are not exclusively breastfed have a risk of stunting by 17.875 times compared to toddlers from fishermen families who are exclusively breastfed.

The same research was conducted in Jadi Village, Semanding-Tuban District, based on the results of chi-square, the p value = 0.000, which means that there is a relationship between exclusive breastfeeding and the incidence of stunting in toddlers. (Eka Wijayanti, 2019). A total of 22 out of 30 stunted toddlers have a history of not being exclusively breastfed by the mother. The number of mothers who do not provide exclusive breastfeeding to their toddlers is due to a lack of knowledge and also a hereditary culture that is still practiced, such as giving porridge or mashed bananas when the baby is not yet 6 months old. Babies who do not get exclusive breastfeeding have less intake, which can cause nutritional problems such as stunting. This is inversely proportional to babies who are exclusively breastfed. Babies tend to have a higher height according to the growth curve compared to babies who are given formula milk (Windasari et al., 2020).

History of ARI

ARI infection is a disease that is often suffered by toddlers due to pathogenic infections that will stimulate the immune response (Maineny et al., 2022). ARI disease disrupts the absorption of nutrients in the intestine, reduces appetite and increases catabolism so that nutrient reserves are not sufficient to support the formation of body tissues during growth. (Usman S, Salma WO, 2021)..

Based on the results of the research that has been done, there are 1 out of 60 toddlers who have suffered from Acute Respiratory Infection (ARI). The p value of the chi-square

test results on the ARI disease history variable is 1.000 (p-value> 0.05), so it can be concluded that there is no significant relationship between the history of ARI disease and the incidence of stunting in toddlers of fishing families in the Mojo Pemalang Coastal Area. The results of the study are in line with the findings conducted in Sedayu District, Bantul which states that there is no significant relationship between ARI disease and the incidence of stunting (p-value = 0.759). (Sahitarani et al., 2020)..

The difference in results occurred in a study conducted by Himawati (2020), toddlers with a history of ARI disease had a 3 times higher risk of stunting compared to toddlers who had never suffered from ARI disease. This difference is due to the possibility that infectious diseases have been handled properly so that they do not affect nutrient intake and stunting status in toddlers (Sahitarani et al., 2020).

History of Diarrheal Diseases

Based on the results of the research that has been conducted, the p-value of *the chi-square test* results was obtained with *a p-value* of 0.424 (*p-value>0.05),* so it can be concluded that there is no significant relationship between the history of diarrhea and the incidence of *stunting* in toddlers of fishing families in the Coastal Area of Mojo Pemalang. The result is *an odds ratio* (OR) value of 2,800. This shows that toddlers from fishing families who have suffered from diarrhea have a 2,800 times higher risk of stunting than toddlers from fishing families who have never suffered from diarrhea. Stunting toddlers who suffered from diarrhea in this study occurred less than 3 times within one month and did not occur consecutively. Based on the interviews conducted, when toddlers suffer from diarrhea, the mother will give oral fluids or herbal medicines. If the toddler does not recover, the mother of the toddler will check her child to the nearest midwife or health service center.

This research is in line with Angraini, 2021 with the results of the research *p-value* 0.237 stating that there was no association between the incidence of diarrhea and *stunting* in the working area of the Rule Mupo Health Center, Central Bengkulu. Diarrhea is not the only factor in the cause of its occurrence *stunting,* There are other factors such as nutrient intake. Diarrhea is a short-term metabolic infectious disease while *stunting* is malnutrition from the impact over a long period of time that occurs continuously (Purwanti & Ratnasari, 2020). Rapid diarrhea prevention, infrequent diarrhea frequency, and short duration cause diarrhea to not affect *stunting* in toddlers (Angraini et al., 2021).

Energy Sufficiency Level

Based on the results of the bivariate test in the table, the results *of the chi-square* test showed *a p-value* of 0.000 (*p-value<0.05),* indicating that there was a significant relationship between the level of energy adequacy and the incidence of *stunting* under five in fishing families in the Mojo Coastal Area of Pemalang. The categorization of energy adequacy levels is divided into 2, namely less (TKE < 80% based on AKG) and sufficient (TKE ≥ 80% based on AKG). The odds *ratio* for this variable is 32,500, indicating that toddlers in fishing families with low energy sufficiency have a 32,500 times greater risk of stunting compared to toddlers from fishing families who have sufficient energy levels. Based on the research conducted, *stunted* toddlers tend to have a poor appetite and prefer snacks compared to eating – the main food.

These results are in line with research conducted by Yuliantini, 2022 with the results of *p-value* = 0.006 which indicates that toddlers with low levels of energy sufficiency have a 9.5 times greater risk of experiencing *stunting* compared to toddlers who have sufficient energy adequacy. Low energy intake in toddlers is caused by a lack of appetite and a lack of feeding leads to an energy imbalance that causes nutritional problems (Yuliantini et al.,

2022). Energy from food can be obtained from macronutrients such as carbohydrates, proteins, and fats. Energy functions as a support in the growth process and metabolism of the body, if toddlers have a low level of energy intake, it will result in obstacles in the growth and cognitive development of toddlers (Diniyyah & Nindya, 2017).

Protein Adequacy Rate

Based on the results of the research that has been carried out, the test results *chi-square* Shows value *p-value* by 0.000 (*p-value* < 0.05) which can be concluded that there is a significant relationship between protein adequacy and incidence *stunting* to toddlers fishing families in the Mojo Coastal Area, Pemalang. The categorization of protein adequacy levels is divided into 2, namely less (< 80% based on AKG) and sufficient (≥ 80% based on AKG). Value *odds ratio* This variable of 28,000 indicates that toddlers from fishing families who have a low level of protein adequacy have a 28,000 times greater risk of developing *stunting* compared to toddlers from fishing families who have sufficient levels of protein adequacy. Although this research was conducted in coastal areas with the majority of the population being fishermen, the level of fish consumption is still relatively low. Toddlers often consume chicken or only vegetable sauce and rice without side dishes. This happens because of the mother's lack of knowledge related to nutrients in food, so the mother gives food that only her toddler wants to eat. If this continues, it will have a negative effect on the growth rate of toddlers because protein plays an important role in building and maintaining body tissues (Syabandini isninda Prisca, C.T. Fatima Pradigdo, Suatno, 2018).

This is supported by previous research that states that low levels of protein intake have a 4 times greater risk of developing *stunting* compared to toddlers with a high level of protein adequacy (Syabandini isninda Prisca, C.T. Fatima Pradigdo, Suatno, 2018). Another research conducted in line by Verawati, 2021 with the results of *p-value= 0,0001 yang* prove that there is a significant relationship between protein adequacy and incidence *stunting* in Pulau Jambu Village (Verawati et al., 2021).

Father's Work

Based on the results of the bivariate test, the results of *the chi-square* test showed a *p-value* of 0.000 (*p-value* < 0.05) which can be concluded that there is a meaningful relationship between father's work and the incidence of *stunting* in toddlers of fishing families in the Coastal Area of Mojo Pemalang. The *odds ratio* value in this variable of 9.036 shows that toddlers with fathers who work as fishermen have a risk of 9.036 times experiencing *stunting* compared to toddlers with father's work as fishermen owners.

The research conducted is in line with the research conducted by Lemaking (2022), with the results that there is a meaningful relationship between the father's work and the incidence *stunting* in Central Kupang. Fishermen are people who sell labor for work in fishing activities at sea, while fishermen owners are people who have a fishing business with rights to boats or fishing gear used to catch fish at sea (Lemaking et al., 2022). Father's work has a big role in nutrition problems because it is related to income and purchasing power for family needs. Toddlers with fathers who work as fishermen have a higher risk of experiencing *stunting* compared to toddlers with their father as a fisherman who owns the boat.

Family Income

Based on the results of the research that has been conducted, the results of *the chi-square* test produced a *p-value* of 0.002 (*p-value* < 0.05) which can be concluded that there is a meaningful relationship between family income and stunting incidence in the Mojo

Coastal Area of Pemalang. Income is categorized based on the regional minimum wage from Pemalang Regency, namely the low (<Rp.2,081,783.00) and high (≥ Rp.2,081,783.00) categories. The odds ratio value of 6.909 shows that toddlers from fishing families with low family income have a 6.909 times greater risk of *stunting* compared to toddlers from fishing families who have high family incomes.

The research was also conducted by Lia Agustin and Dian Rahmawati (2021) with the results of the research value p = 0.0004 which means that family income has a relationship with the incidence *stunting*. Low family income affects the availability of food in households, the majority of people with low incomes will spend their income to buy foodstuffs with high carbohydrates and without looking at the nutritional content in them so that it can have an impact on their nutritional problems (Agustin & Rahmawati, 2021). However, this research is not in line with the research conducted in the Gabus Grobogan Health Center Working Area. The results of the study showed that there was no relationship between family income and incidence *stunting* (Pranindita, 2022). The difference in these results may have occurred because the research was carried out in different locations, the Gabus area is located in limestone hills with the majority of the people as farmers and breeders while the coastal area of Mojo is located on the north coast where the people work as fishermen.

Father's Work

Indonesia is a country surrounded by vast waters, so the majority of its people have a livelihood as fishermen. Coastal areas are the landing places of marine resource capture (Sahitarani et al., 2020). In this study, the father's work is categorized into 2, namely fisherman laborers and owner fishermen. Based on the results of the bivariate test, the test results *chi-square* Shows value *p-value* by 0.000 (*p-value<0.05)* It can be concluded that there is a meaningful relationship between the father's work and the occurrence *stunting* to toddlers fishing families in the Mojo Coastal Area, Pemalang. Value *odds ratio* This variable of 9.036 shows that toddlers with fathers who work as fishermen have a 9.036 times greater risk of developing *stunting* compared to toddlers with their father's job as a fisherman owner.

Another study was also conducted by Lemaking (2022), that there is a significant relationship between father's work and the incidence of *stunting* in Central Kupang. Fishermen are people who sell labor for work in fishing activities at sea, while fishermen owners are people who have a fishing business with rights to boats or fishing gear used to catch fish at sea (Lemaking et al., 2022). Father's work has a big role in nutrition problems because it is related to income and purchasing power for family needs. Toddlers with fathers who work as fishermen have a higher risk of experiencing *stunting* compared to toddlers with their father as a fisherman who owns the boat.

Fishermen Working Group

Based on the results of the bivariate test, the results of *the chi-square* test showed a *p-value* of 0.003 (*p-value<0.05),* with the conclusion that there was a significant relationship between the father's work and the incidence of *stunting* under five in fishing families. The *odds ratio* value in this variable of 6.538 shows that toddlers with fathers who work as fishermen individually have a 6.538 times risk of *stunting* compared to toddlers with fathers who work in groups when going to sea.

Based on interviews conducted, individual fishermen have limitations in finding fish in the sea. Individual fishermen usually leave and return to sea on the same day with the range of looking for fish not far from the coast. This limitation affects the catch

produced, so it has a low income. While group fishermen usually go to sea in groups with a span of days at sea, besides that there is also a range in looking for fish that is far enough from the coast so that they have more catches. This large catch affects the income obtained. The fluctuations in fish catch by fishermen are influenced by several factors such as environmental factors, fishing technology, seasonal factors, especially during the famine season, usually fewer catches and have an impact on declining income (Ridha, 2017). In addition, the physical factors of fishermen also affect the catch. If the individual fisherman is in an unhealthy condition and does not go to sea, the fisherman does not have income so that it affects the family's food security.

Access to Clean Water

Based on the results of the research that has been conducted, the results of *the Chi-square* test show a *p-value* of 0.001 (*p-value* < 0.05) which can be concluded that there is a meaningful relationship between access to clean water and the incidence of *stunting*. The *odds ratio* value of 8,000 shows that toddlers from fishing families who do not have access to clean water have an 8,000 times risk of *stunting* compared to toddlers from fishing families who have access to clean water. Based on the observations made, the majority of *stunted toddlers* have a water source from dug wells. There are still many houses with clean water sources close to sewage disposal sites. In addition, in the procurement of clean water for consumption and other uses, it is still not in accordance with the requirements such as water is not placed in a special container and is not covered with a close distance from garbage cans and bathrooms.

According to the Ministry of Health (2017), each house has its own source of clean water from Rainwater Reservoirs (PAH), PDAM, dug well water, pump wells, and springs with a distance of at least 10-15 meters from feces, sewage and garbage disposal. Water must meet the physical requirements of clean water, including clear or cloudy water, colorless water, odorless water, and water that has no taste when drinked. The storage location for drinking water is placed in a special container, clean, airtight, the distance of the water reservoir for consumption is 10 meters from the source of pollutants (septitank or garbage can), there are no animals (cockroaches or flies) around the water reservoir, and the water is boiled before consumption or for other uses.

Research was also conducted by Angraini (2021) at the Mumpo Rules Health Center in Central Bengkulu with the results *p-value* 0.038 means that there is a meaningful relationship between access to clean water and the incidence of *stunting*. Good and qualified maintenance of clean water can reduce the risk of diarrhea by up to 30 – 40 times (Angraini et al., 2021). The same results were also obtained by Zairinayati's (2019) research with the results of toddlers who live at home with clean water sources without treatment (well water) have a 0.13 times risk of experiencing *stunting* compared to toddlers who live with clean water sources that have been treated (PAM). Clean water facilities are the dominant factor in the onset of diarrheal diseases in toddlers, so prevention efforts are needed by taking water from uncontaminated water sources (Zairinayati, 2019). If toddlers suffer from diarrhea and it occurs continuously for more than 2 weeks, the energy in the body for growth will be diverted to the fight against infection, making it difficult for nutrients to be absorbed properly by the body, resulting in the child experiencing nutritional problems *stunting* (Alfadhila Khairil Sinatrya & Lailatul Muniroh, 2019).

CONCLUSION

Based on a study conducted on toddlers from fishing families aged 24-59 months in the Mojo Coastal Area of Pemalang, the number of respondents as many as 60 toddlers

showed that there was a relationship between exclusive breastfeeding history, father's work, fishermen's work group, family income, access to clean water, energy adequacy level and protein adequacy level with stunting incidence in toddlers of fishing families. There was no relationship between BBLR, history of ISPA disease, and history of diarrhea disease with the incidence of *stunting* in toddlers of fishing families in the Coastal Area of Mojo Pemalang. The results of the multivariate analysis showed that the biggest risk factor affecting the incidence of *stunting* was the low level of protein adequacy. Toddlers with low protein adequacy had a 68,167 greater risk of *stunting* than toddlers with sufficient protein adequacy.

ACKNOWLEDGEMENT

The author would like to thank the Mojo Ulujami Pemalang Health Center for supporting this research. Thank you also to the posyandu cadres and respondents who have participated in the research of this article.

REFERENCES

Agustin, L., & Rahmawati, D. (2021). The Relationship between Family Income and Stunting Incidence. *Indonesian Journal of Midwifery (IJM)*, *4*(1), 30. https://doi.org/10.35473/ijm.v4i1.715

Ahmad Rizal, Miratul Haya, T. C. M. (2022). Factors Related to Stunting Children Under Five in Fishing Families in Teluk Segara District, Bengkulu City. *Journal of Rafflesia Partners, 14 Number 1*.

Alfadhila Khairil Sinatrya, & Lailatul Muniroh. (2019). The Relationship between Water, Sanitation, and Hygiene (WASH) Factors with Stunting in the Work Area of the Kotakulon Health Center, Bondowoso Regency. *Amerta Nutrition*, *3*(3), 164–170. https://doi.org/10.2473/amnt.v3i3.2019.164-170

Angraini, W., Amin, M., Pratiwi, B. A., Febriawati, H., & Yanuarti, R. (2021). Mother's knowledge, access to clean water and diarrhea with stunting at the Kumpo Rule Health Center, Central Bengkulu. *Journal of Health (Public Health) Equatorial Medicine*, *8*(2), 92. https://doi.org/10.29406/jkmk.v8i2.2816

Astutik, D. (2018). Risk Factors for Stunting in Children Under 24-59 Months (Case Study in the Working Area of the Gabus II Health Center, Pati Regency in 2017). *Journal of Public Health (e-Journal), 6*(1), 409–418.

Bappenas. (2018). Guidelines for the Implementation of Integrated Stunting Reduction Interventions in Districts/Cities. *Bappenas*.

Cameron, L., Chase, C., Haque, S., Joseph, G., Pinto, R., & Wang, Q. (2021). Childhood stunting and cognitive effects of water and sanitation in Indonesia. *Economics and Human Biology*, *40*(November 2020), 100944. https://doi.org/10.1016/j.ehb.2020.100944

Diniyyah, S. R., & Nindya, T. S. (2017). Energy, Protein and Fat Intake with Malnutrition in Toddlers Aged 24-59 Months in Suci Village, Gresik. *Amerta Nutrition*, *1*(4), 341. https://doi.org/10.20473/amnt.v1i4.7139

Eka Wijayanti, E. (2019). The Relationship Between BBLR, Exclusive Breastfeeding and the Incidence of Stunting in Toddlers Aged 2-5 Years. *Journal of Health Dr. Soebandi*, *7*(1), 36–41. https://doi.org/10.36858/jkds.v7i1.138

Femidio, M., & Muniroh, L. (2020). Differences in Parenting Patterns and Nutrient Adequacy Levels in Stunted and Non-Stunting Toddlers in the Coastal Areas of Probolinggo Regency. *Amerta Nutrition*, *4*(1), 49. https://doi.org/10.20473/amnt.v4i1.2020.49-57

Ministry of Health of the Republic of Indonesia. (2020). *Regulation of the Minister of Health of the Republic of Indonesia Number 2 of 2020 concerning Children's Anthropometric Standards*.

Lemaking, V. B., Manimalai, M., & Djogo, H. M. A. (2022). The relationship between father's work, mother's education, parenting, and the number of family members with the incidence of stunting in toddlers in Central Kupang District, Kupang Regency. *Indonesian Nutrition Sciences*, *5*(2), 123. https://doi.org/10.35842/ilgi.v5i2.254

Maineny, A., Longulo, O. J., & Endang, N. (2022). The relationship between the history of infectious diseases and the incidence of stunting in toddlers aged 24-59 months in the working area of the Marawola Health Center, Sigi Regency. *Journal of Smart Midwives*, *4*(1), 10–17. https://doi.org/10.33860/jbc.v4i1.758

Mugianti, S., Mulyadi, A., Anam, A. K., & Najah, Z. L. (2018). Factors Causing Stunting Children Aged 25-60 Months in Sukorejo District, Blitar City. *Journal of Ners and Midwifery*, *5*(3), 268–278. https://doi.org/10.26699/jnk.v5i3.art.p268-278

Nirmalasari, N. O. (2020). Stunting in Children: Causes and Risk Factors for Stunting in Indonesia. *Qawwam: Journal For Gender Mainstreaming*, *14*(1), 19–28. https://doi.org/10.20414/Qawwam.v14i1.2372

Pranindita Salsabila Kinaya, W. H. C. (2022). Stunting in Toddlers Aged 24 - 59 Months. *Higeia Journal of Public Health Research and Development*, *6 (4)*. https://doi.org/https://doi.org/10.15294/higeia/v5i2/35360

Pratama, B., Angraini, D. I., & Nisa, K. (2019). Penyebab Langsung (Immediate Cause) yang Mempengaruhi Kejadian Stunting pada Anak Immediate Cause Affects Stunting in Children. *Sandi Husada Health Scientific Journal*, *10*(2), 299–303. https://doi.org/10.35816/jiskh.v10i2.167

Purwanti, D. Y., & Ratnasari, D. (2020). The relationship between the incidence of diarrhea, exclusive breastfeeding, and stunting in toddlers. *Scientific Journal of Health Nutrition)*, *1*(02), 15–23.

Rahayu, B., & Darmawan, S. (2019). The relationship between the characteristics of toddlers, parents, hygiene and environmental sanitation to stunting in toddlers. *Binawan Student Journal*, *1*(1), 22–27. http://journal.binawan.ac.id/bsj/article/view/46

Ramdaniati, S. N., & Nastiti, D. (2019). The Relationship between Characteristics of Toddlers, Maternal Knowledge and Sanitation on the Incidence of Stunting in Toddlers in Labuan District, Pandeglang Regency. *Hearty*, *7*(2), 47–54. https://doi.org/10.32832/hearty.v7i2.2877

Ridha, A. (2017). Analysis of Factors Affecting Fishermen's Income in Idi Rayeuk District. *Journal of Ocean Economics and Business*, *8*(1), 646–652. https://doi.org/10.33059/jseb.v8i1.205

Rosha, B. C., Susilowati, A., Amaliah, N., & Permanasari, Y. (2020). Direct and Indirect Causes of Stunting in Five Villages in Central Bogor District, Bogor City (Qualitative Study of Child Growth and Development Cohort in 2019). *Health Research Bulletin*, *48*(3), 169–182. https://doi.org/10.22435/bpk.v48i3.3131

Rusmil, V. K., Ikhsani, R., Dhamayanti, M., & Hafsah, T. (2019). The Relationship of Maternal Behavior in Feeding Practices in Children Aged 12-23 Months with the Incidence of Stunting in the Work Area of the Jatinangor Health Center. *Pediatrics*, *20*(6), 366. https://doi.org/10.14238/sp20.6.2019.366-74

Sabihaini, Pratomo Awang Hendrianto, Rustamaji Heru Cahya, S. (2020). Analysis of Characteristics of Traditional Fishermen Based on Types and Classifications of Fishermen, Working Group, Type of Water, Technology, Professional Skill Aspects, Navigation and Communication System. *EKSOS, Vol. 2, No.*

Sahitarani, A. S., Paramashanti, B. A., & Sulistiyawati, S. (2020). The Relationship of Stunting with the Frequency and Duration of Infectious Diseases in Children Aged 24-59 Months in Sedayu District, Bantul Regency. *Journal of Nutrition College*, *9*(3), 202–207. https://doi.org/10.14710/jnc.v9i3.26952

Sampe, Sr. Anita, SJMJ, Rindani Claurita Toban, M. A. M. (2020). The Relationship between Exclusive Breastfeeding and the Incidence of Stunting in Toddlers. *Sandi Husada Health Scientific Journal*, *Vol 11*, *No*. https://doi.org/DOI: 10.35816/jiskh.v10i2.314

Syabandini Isninda Priska, Siti Fatimah Pradigdo, Suyatno, D. R. P. (2018). RISK FACTORS FOR STUNTING INCIDENCE IN CHILDREN AGED 6-24 MONTHS IN FISHING AREAS (Case-Control Study in Tambak Lorok Village, Tanjung Mas District, Semarang City). *Journal of Public Health*, *Volume 6*,. https://doi.org/ISSN: 2356-3346

UNICEF/WHO/WORLD BANK. (2021). Levels and trends in child malnutrition UNICEF / WHO / World Bank Group Joint Child Malnutrition Estimates Key findings of the 2021 edition. *World Health Organization*, 1–32. https://www.who.int/publications/i/item/9789240025257

UNICEF. (2020). Nutrition, for every child UNICEF nutrition strategy 2020–2030. *UNICEF Publications*, 1–98.

Usman S, Salma WO, A. (2021). Evaluation of stunting incidence in toddlers who have a history of infectious diseases at the Rumbia Health Center. *Journal of Scientific Obstetrics and Gynecology*, *13*(3), 11–19. https://stikes-nhm.e-journal.id/JOB/article/view/410%0Ahttps://stikes-nhm.e-journal.id/JOB/article/download/410/373

Utama, S. Y. A., Inayati, A., & Sugiarto, S. (2019). The Relationship between the Condition of Family Toilets and Clean Water Facilities with the Incidence of Diarrhea in Toddlers in the Working Area of the Arosbaya Bangkalan Health Center. *Health Dynamics Journal of Midwifery and Nursing*, *10*(2), 820–832. https://doi.org/10.33859/dksm.v10i2.465

Verawati, B., Afrinis, N., & Yanto, N. (2021). *The Relationship between Protein Intake and Food Security and the Incidence of Stunting in Toddlers in Masa*. *5*(April), 415–423.

Windasari, D. P., Syam, I., & Kamal, L. S. (2020). Factors related to the incidence of stunting at the Tamalate Health Center, Makassar City. *AcTion: Aceh Nutrition Journal*, *5*(1), 27. https://doi.org/10.30867/action.v5i1.193

Yuliantini, E., Kamsiah, K., Maigoda, T. C., & Ahmad, A. (2022). Food intake with stunting incidence in fishing families in Bengkulu City. *AcTion: Aceh Nutrition Journal*, *7*(1), 79. https://doi.org/10.30867/action.v7i1.579

Zairinayati, R. P. (2019). The Relationship between Environmental Hygiene and Sanitation and the Incidence of Stunting in Toddlers. *Babul Ilmi Journal of Imiah Multi Science Health*, *Vol 10*, *No*.

Agustin, L., & Rahmawati, D. (2021). The Relationship between Family Income and Stunting Incidence. *Indonesian Journal of Midwifery (IJM)*, *4*(1), 30. https://doi.org/10.35473/ijm.v4i1.715

Ahmad Rizal, Miratul Haya, T. C. M. (2022). Factors Related to Stunting Children Under Five in Fishing Families in Teluk Segara District, Bengkulu City. *Journal of Rafflesia Partners*, *14 Number 1*.

Alfadhila Khairil Sinatrya, & Lailatul Muniroh. (2019). The Relationship between Water, Sanitation, and Hygiene (WASH) Factors with Stunting in the Work Area of the Kotakulon Health Center, Bondowoso Regency. *Amerta Nutrition*, *3*(3), 164–170. https://doi.org/10.2473/amnt.v3i3.2019.164-170

Angraini, W., Amin, M., Pratiwi, B. A., Febriawati, H., & Yanuarti, R. (2021). Mother's

knowledge, access to clean water and diarrhea with stunting at the Kumpo Rule Health Center, Central Bengkulu. *Journal of Health (Public Health) Equatorial Medicine*, *8*(2), 92. https://doi.org/10.29406/jkmk.v8i2.2816

Astutik, D. (2018). Risk Factors for Stunting in Children Under 24-59 Months (Case Study in the Working Area of the Gabus II Health Center, Pati Regency in 2017). *Journal of Public Health (e-Journal), 6*(1), 409–418.

Bappenas. (2018). Guidelines for the Implementation of Integrated Stunting Reduction Interventions in Districts/Cities. *Bappenas*.

Cameron, L., Chase, C., Haque, S., Joseph, G., Pinto, R., & Wang, Q. (2021). Childhood stunting and cognitive effects of water and sanitation in Indonesia. *Economics and Human Biology*, *40*(November 2020), 100944. https://doi.org/10.1016/j.ehb.2020.100944

Diniyyah, S. R., & Nindya, T. S. (2017). Energy, Protein and Fat Intake with Malnutrition in Toddlers Aged 24-59 Months in Suci Village, Gresik. *Amerta Nutrition*, *1*(4), 341. https://doi.org/10.20473/amnt.v1i4.7139

Eka Wijayanti, E. (2019). The Relationship Between BBLR, Exclusive Breastfeeding and the Incidence of Stunting in Toddlers Aged 2-5 Years. *Journal of Health Dr. Soebandi*, *7*(1), 36–41. https://doi.org/10.36858/jkds.v7i1.138

Femidio, M., & Muniroh, L. (2020). Differences in Parenting Patterns and Nutrient Adequacy Levels in Stunted and Non-Stunting Toddlers in the Coastal Areas of Probolinggo Regency. *Amerta Nutrition*, *4*(1), 49. https://doi.org/10.20473/amnt.v4i1.2020.49-57

Ministry of Health of the Republic of Indonesia. (2020). *Regulation of the Minister of Health of the Republic of Indonesia Number 2 of 2020 concerning Children's Anthropometric Standards*.

Lemaking, V. B., Manimalai, M., & Djogo, H. M. A. (2022). The relationship between father's work, mother's education, parenting, and the number of family members with the incidence of stunting in toddlers in Central Kupang District, Kupang Regency. *Indonesian Nutrition Sciences*, *5*(2), 123. https://doi.org/10.35842/ilgi.v5i2.254

Maineny, A., Longulo, O. J., & Endang, N. (2022). The relationship between the history of infectious diseases and the incidence of stunting in toddlers aged 24-59 months in the working area of the Marawola Health Center, Sigi Regency. *Journal of Smart Midwives*, *4*(1), 10–17. https://doi.org/10.33860/jbc.v4i1.758

Mugianti, S., Mulyadi, A., Anam, A. K., & Najah, Z. L. (2018). Factors Causing Stunting Children Aged 25-60 Months in Sukorejo District, Blitar City. *Journal of Ners and Midwifery*, *5*(3), 268–278. https://doi.org/10.26699/jnk.v5i3.art.p268-278

Nirmalasari, N. O. (2020). Stunting in Children: Causes and Risk Factors for Stunting in Indonesia. *Qawwam: Journal For Gender Mainstreaming*, *14*(1), 19–28. https://doi.org/10.20414/Qawwam.v14i1.2372

Pranindita Salsabila Kinaya, W. H. C. (2022). Stunting in Toddlers Aged 24 - 59 Months. *Higeia Journal of Public Health Research and Development*, *6 (4)*. https://doi.org/https://doi.org/10.15294/higeia/v5i2/35360

Pratama, B., Angraini, D. I., & Nisa, K. (2019). Penyebab Langsung (Immediate Cause) yang Mempengaruhi Kejadian Stunting pada Anak Immediate Cause Affects Stunting in Children. *Sandi Husada Health Scientific Journal*, *10*(2), 299–303. https://doi.org/10.35816/jiskh.v10i2.167

Purwanti, D. Y., & Ratnasari, D. (2020). The relationship between the incidence of diarrhea, exclusive breastfeeding, and stunting in toddlers. *Scientific Journal of Health Nutrition)*, *1*(02), 15–23.

Rahayu, B., & Darmawan, S. (2019). The relationship between the characteristics of toddlers, parents, hygiene and environmental sanitation to stunting in toddlers. *Binawan Student Journal*, *1*(1), 22–27. http://journal.binawan.ac.id/bsj/article/view/46

Ramdaniati, S. N., & Nastiti, D. (2019). The Relationship between Characteristics of Toddlers, Maternal Knowledge and Sanitation on the Incidence of Stunting in Toddlers in Labuan District, Pandeglang Regency. *Hearty*, *7*(2), 47–54. https://doi.org/10.32832/hearty.v7i2.2877

Ridha, A. (2017). Analysis of Factors Affecting Fishermen's Income in Idi Rayeuk District. *Journal of Ocean Economics and Business*, *8*(1), 646–652. https://doi.org/10.33059/jseb.v8i1.205

Rosha, B. C., Susilowati, A., Amaliah, N., & Permanasari, Y. (2020). Direct and Indirect Causes of Stunting in Five Villages in Central Bogor District, Bogor City (Qualitative Study of Child Growth and Development Cohort in 2019). *Health Research Bulletin*, *48*(3), 169–182. https://doi.org/10.22435/bpk.v48i3.3131

Rusmil, V. K., Ikhsani, R., Dhamayanti, M., & Hafsah, T. (2019). The Relationship of Maternal Behavior in Feeding Practices in Children Aged 12-23 Months with the Incidence of Stunting in the Work Area of the Jatinangor Health Center. *Pediatrics*, *20*(6), 366. https://doi.org/10.14238/sp20.6.2019.366-74

Sabihaini, Pratomo Awang Hendrianto, Rustamaji Heru Cahya, S. (2020). Analysis of Characteristics of Traditional Fishermen Based on Types and Classifications of Fishermen, Working Group, Type of Water, Technology, Professional Skill Aspects, Navigation and Communication System. *EKSOS, Vol. 2*, *No.*

Sahitarani, A. S., Paramashanti, B. A., & Sulistiyawati, S. (2020). The Relationship of Stunting with the Frequency and Duration of Infectious Diseases in Children Aged 24-59 Months in Sedayu District, Bantul Regency. *Journal of Nutrition College*, *9*(3), 202–207. https://doi.org/10.14710/jnc.v9i3.26952

Sampe, Sr. Anita, SJMJ, Rindani Claurita Toban, M. A. M. (2020). The Relationship between Exclusive Breastfeeding and the Incidence of Stunting in Toddlers. *Sandi Husada Health Scientific Journal*, *Vol 11*, *No*. https://doi.org/DOI: 10.35816/jiskh.v10i2.314

Syabandini Isninda Priska, Siti Fatimah Pradigdo, Suyatno, D. R. P. (2018). RISK FACTORS FOR STUNTING INCIDENCE IN CHILDREN AGED 6-24 MONTHS IN FISHING AREAS (Case-Control Study in Tambak Lorok Village, Tanjung Mas District, Semarang City). *Journal of Public Health*, *Volume 6,*. https://doi.org/ISSN: 2356-3346

UNICEF/WHO/WORLD BANK. (2021). Levels and trends in child malnutrition UNICEF / WHO / World Bank Group Joint Child Malnutrition Estimates Key findings of the 2021 edition. *World Health Organization*, 1–32. https://www.who.int/publications/i/item/9789240025257

UNICEF. (2020). Nutrition, for every child UNICEF nutrition strategy 2020–2030. *UNICEF Publications*, 1–98.

Usman S, Salma WO, A. (2021). Evaluation of stunting incidence in toddlers who have a history of infectious diseases at the Rumbia Health Center. *Journal of Scientific Obstetrics and Gynecology*, *13*(3), 11–19. https://stikes-nhm.e-journal.id/JOB/article/view/410%0Ahttps://stikes-nhm.e-journal.id/JOB/article/download/410/373

Utama, S. Y. A., Inayati, A., & Sugiarto, S. (2019). The Relationship between the Condition of Family Toilets and Clean Water Facilities with the Incidence of Diarrhea in Toddlers in the Working Area of the Arosbaya Bangkalan Health Center. *Health Dynamics Journal of Midwifery and Nursing*, *10*(2), 820–832. https://doi.org/10.33859/dksm.v10i2.465

Verawati, B., Afrinis, N., & Yanto, N. (2021). *The Relationship between Protein Intake and Food Security and the Incidence of Stunting in Toddlers in Masa*. *5*(April), 415–423.

Windasari, D. P., Syam, I., & Kamal, L. S. (2020). Factors related to the incidence of stunting at the Tamalate Health Center, Makassar City. *AcTion: Aceh Nutrition Journal*, *5*(1), 27. https://doi.org/10.30867/action.v5i1.193

Yuliantini, E., Kamsiah, K., Maigoda, T. C., & Ahmad, A. (2022). Food intake with stunting incidence in fishing families in Bengkulu City. *AcTion: Aceh Nutrition Journal*, *7*(1), 79. https://doi.org/10.30867/action.v7i1.579

Zairinayati, R. P. (2019). The Relationship between Environmental Hygiene and Sanitation and the Incidence of Stunting in Toddlers. *Babul Ilmi Journal of Imiah Multi Science Health*, *Vol 10*, *No*.