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The Factors Affecting Stunting on Toddlers in Coastal Areas

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A B S T R A C T

Stunting is a physical growth disorder characterized by a decrease in the speed of growth that occurs due to lack of nutritional intake in children in the first 1000 days of life. The prevalence of stunting in Pasuruan Regency is high, at 22.5%. The area with the highest prevalence of stunting is the coastal area. This study aims to determine the factors that cause stunting in children under five in the coastal area of Pasuruan. The results showed that from the 17 variables analyzed, 6 factors were formed that influence the incidence of stunting in coastal areas, including high parental education factors, history of infectious diseases, economy, breastfeeding, family structure and nutrition of pregnant women. The results showed that from the 17 variables analyzed, 6 factors were formed that influence the incidence of stunting in coastal areas, including high parental education factors, history of infectious diseases, economy, breastfeeding, family structure and nutrition of pregnant women. The results showed that from the 17 variables analyzed, 6 factors were formed that influence the incidence of stunting in coastal areas, including high parental education factors, history of infectious diseases, economy, breastfeeding, family structure and nutrition of pregnant women. An integrated and multi-sectoral program is needed to increase family income, family knowledge related to balanced nutrition and growth and development of toddlers to reduce the incidence of stunting.

Kata kunci:

Stunting
Balita
Pesisir

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A B S T R A K

Stunting merupakan gangguan pertumbuhan fisik yang ditandai dengan penurunan kecepatan pertumbuhan yang terjadi karena kurangnya asupan gizi pada anak dalam 1000 hari pertama kehidupan. Prevalensi stunting di Kabupaten Pasuruan tergolong tinggi, yaitu 22,5%. Wilayah dengan prevalensi stunting tertinggi adalah wilayah pesisir. Tujuan penelitian ini adalah mengetahui faktor-faktor penyebab stunting pada balita di daerah pesisir Kabupaten Pasuruan. Jenis penelitian ini adalah studi analitik observasional dengan desain case control. Sampel dalam penelitian ini adalah balita stunting berusia 24 - 60 bulan sebanyak 51 orang yang dipilih dengan teknik quota sampling. Penelitian dilaksanakan pada bulan Mei-Agustus 2021. Instrumen yang digunakan adalah kuesioner dan observasi. Analisis data menggunakan uji KMO dan Bartlett's Test. Hasil penelitian menunjukkan dari 17 variabel yang dianalisis terbentuk 6 faktor yang mempengaruhi kejadian stunting di wilayah pesisir antara lain tinggi faktor pendidikan orang tua, riwayat penyakit infeksi, ekonomi, pemberian ASI, struktur keluarga dan nutrisi ibu hamil. Perlu program yang terintegrasi dan multisektoral untuk meningkatkan pendapatan keluarga, pengetahuan keluarga terkait gizi seimbang dan tumbuh kembang balita untuk mengurangi kejadian stunting.

INTRODUCTION

Stunting is a physical growth disorder characterized by a decrease in growth speed and is the impact of nutritional imbalances. Stunting occurs due to lack of nutritional intake in children in the first 1000 days of life, namely since the child is still in the womb until the child is 2 years old (Ningrum & Utami, 2018). Stunting is still a nutritional problem in Indonesia that has not been resolved and will cause long-term impacts, namely disruption of physical, mental, intellectual, and cognitive development (Sugiyanto & Sumarlan, 2021). Stunting in children can be caused by poor parenting, poor environmental hygiene, and poor nutritional intake. Coastal areas are rich in fish and other marine products that can support stunting prevention in toddlers if they are given optimally, but so far the majority of marine products are sold outside the region for reasons of high prices regardless of the health and nutritional status of toddler live in the local area.

Stunting is still a global and national health problem. The results of Riskesdas in 2013 showed that Indonesia had a prevalence of stunting under five children of 37.2%, higher than other countries in Southeast Asia, such as Myanmar (35%), Vietnam (23%) and Thailand (16%) (Apriluana & Fikawati , 2018). Indonesia is ranked fifth in the world for the number of children with stunting conditions. The prevalence of stunting in Pasuruan Regency is also quite high, at 22.5%. The areas with the highest prevalence of stunting are coastal areas including Nguling District, Lekok District, Kraton District (Pasuruan District Health Office, 2021). The high prevalence of stunting in Indonesia is a health problem that must be addressed, in line with the SDGs (Sustainable Development Goals) program which targets a reduction in the prevalence of stunting in children under five by 2025 and an end to all forms of malnutrition by 2030.

Stunting is defined as a condition in which the nutritional status of children according to TB/U with the results of the Z Score = <-2 SD indicates a concise body condition as a result of growth failure. Stunting in children is also a risk factor for death, low motor development problems, low language skills, and functional imbalances (Anwar, Khomsan, and Mauludyani, 2014).

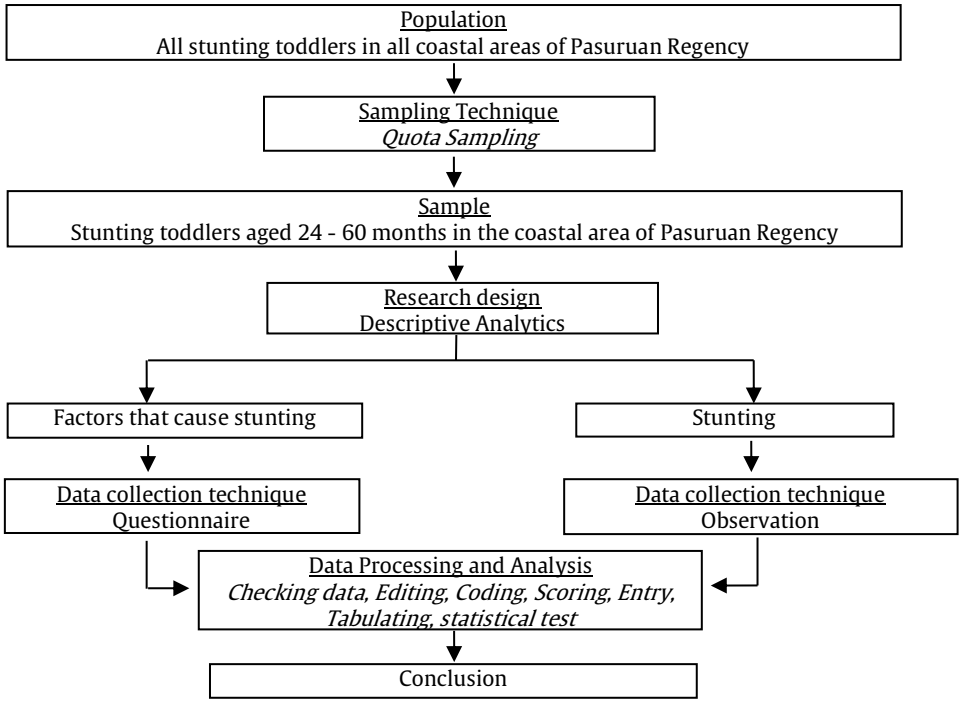
Stunting is a growth failure problem experienced by infants under five years of age who are malnourished from the womb until the baby is born; stunting itself will appear when the baby is two years old (Kemiskinan, 2017). According to what was stated by Schmidt, stunting is a problem of malnutrition with a long enough period so that height growth disorders appear in children who are lower or shorter (short) than their age standards (Schmidt, 2014).

Reducing the prevalence of stunting is carried out through various programs from individual, family, group and community health. One of the program targets in reducing stunting rates is mapping the factors that cause stunting. This mapping needs to be done to identify the dominant factors causing stunting in coastal areas so that preventive measures can be taken to reduce stunting prevalence.

MATERIALS AND METHODS

The design used in this study was analytical observational with a retrospective design. The population of this research is stunting toddlers in all coastal areas of Pasuruan Regency. The sample used in this study was stunting toddlers aged 25-60 months in the coastal area of Pasuruan Regency as many as 51 people who were selected by quota sampling technique. The data collection instrument used a questionnaire and an observation sheet. Details of research Methodology was shown in Figure 1.

Figure 1. Research Methodology



Questionnaires were used to collect data on the factors that cause stunting in children under five. The observation sheet is used to monitor the child's height/length. The data collected were analyzed using the Kaiser – Meyer – Olkin

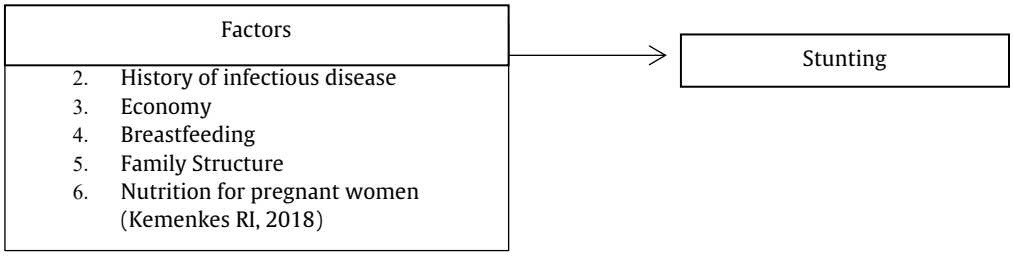
(KMO), Kaiser Meyer Olkin Measure of Sampling (KMO). KMO is a comparison index of the distance between the correlation coefficient and its partial correlation coefficient. If the sum of the squares of the partial correlation coefficients between all pairs of variables is small compared to the sum of the squares of the correlation coefficients, it will produce a KMO value close to 1. The KMO value considers sufficient if it is more than 0.5.146. The results show that the Kaiser Meyer Olkin Measure of Sampling value of 0.580. Thus the KMO requirements meet the requirements because they have a value above 0.5.

Bartlett's Test to find out what factors influence the incidence of stunting in the coastal area of Pasuruan Regency. The Bartlett test is a statistical test used to test the hypothesis that the variables uncorrelated in the population. The correlation matrix is an identity matrix; each variable is correlated with himself perfectly with (r=1) but completely uncorrelated with others (r = 0).

This research has passed the Ethical Eligibility Test from the Health Research Ethics Committee (KEPK) of the Universitas Jember with 132/UN25.1.14/KEPK/2021.

The nursing process is nursing assessment, nursing diagnoses, nursing intervention, nursing action, and evaluation. The process can be done with aid by nurses. Application of the factors affecting stunting on toddlers in coastal areas was shown in Figure 2.

Figure 2. Theoritical Framework Factors Affecting Stunting on Toddlers



RESULTS

Table 1. Family Characteristics of Stunting Toddlers

Variabel	f	%
Father's education		
Senior High School	32	62.7
Junior high school	14	27.5
Elementary school	4	7.8
No school	1	2
Mother's education		
Senior High School	38	74.5
Junior high school	7	13.7
Elementary school	6	11.8
No school	0	0
Father's occupation		
Work	41	80.4
Does not work	10	19.6
Mother's occupation		
Work	22	43.1
Does not work	29	56.9
father's height		
>150	41	80.4
<150	10	19.6
Mother's height		
>145	29	43.1
<145	22	56.9
Monthly income		
≥ Regional minimum wage	11	21.6
≤ Regional minimum wage	40	78.4
Number of children		
1	12	23.5
2	21	41.2
3	15	29.4
4	3	5.9
Mother's age at pregnancy		
>16 years old	37	72.5
<16 years old	14	27.5
Mother's age at delivery		
≤ 35 years old	35	68.6
≥ 35 years old	16	31.4

Table 1 shows family characteristics including education, occupation, parental height, family income, number of children, maternal age at pregnancy and childbirth. Most of the fathers and mothers had junior high school education, namely 62.7% and 74.5%. Almost all fathers work (80.4%) while most mothers do not work (56.9%). Almost all of the father's height (80.4%) is above 150 cm. Most of the mother's height (56.9%) was less than 145 cm. The family's monthly income is almost entirely below the minimum wage (78.4%). Almost half (41.2 percent) of the families are classified as small families with 2 children. Most of the mothers (72.5%) were over 16 years old at the time of pregnancy. Most of the mothers (68.6%) were less than 35 years old at the time of delivery.

Table 2 shows the characteristics of children including toddler age, gender, birth spacing, birth weight and length, early initiation of breastfeeding, exclusive breastfeeding and complementary feeding, and duration of breastfeeding, immunization status, incidence of diarrhea and ARI. Most of the toddlers aged 25-36 months (68.6%) and female (56.9%). Most birth spacing <2 years (51%) Most had birth weight less than normal (68.6%) and birth length less than normal (58.8%). Most did early initiation of breastfeeding >6 hours after the baby was born (64.7%). Most of the mothers said they did not give exclusive breastfeeding (74.5%) and the duration of breastfeeding was less than 2 years (60.8%). Complete immunization status was 68.6% and almost all of them had a history of experiencing infectious diseases, namely diarrhea (86.3%) and Upper Respiratory Tract Infection (84.3%).

The results of the mapping of the factors causing stunting were analyzed using the Kaiser – Meyer – Olkin (KMO) test and the Bartlett's Test. In the initial test of the 22 variables tested, there were 5 variables with communal values below 0.5, namely father's height, mother's height, gender, immunization status, and type of immunization. So that the five variables are removed from the matrix and retesting will be carried out. The following are the results of the KMO and Bartlet tests and MSA tests after retesting.

Table 2. Characteristics of Stunting Toddlers

Variabel	f	%
Age	35	
25-36 months	10	68.6
37-48 months	6	19.6
49-60 months		11.8
Gender		43.1
Male	22	56.9
Female	29	
Birth distance		49
≥ 2 years	25	51
< 2 years	26	
Birth Weight		31.4
Normal	16	68.6
Less than normal	35	
Birth Body Length		
Normal	21	41.2
Less than normal	30	58.8
Early Initiation of Breastfeeding	18	35.3
≤ 6 hours	33	64.7
> 6 hours		
Exclusive Breastfeeding		
Yes	13	25.5
No	38	74.5
Complementary feeding		
Yes	13	25.5
No	38	74.5
Breastfeeding duration		
2 years	20	39.2
< 2 years	31	60.8
Immunization Status		
Complete	35	68.6
Incomplete	16	31.4
Diarrhea		
Yes	44	86.3
No	7	13.7
Upper respiratory tract infection	43	84.3
Yes	8	15.7
No		

Table 3. KMO Test and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.596
Bartlett's Test of Sphericity	*Approx. Chi-Square*	108.497
	df	36
	Sig.	.000

Table 3 shows the Measure of Sampling Adequacy (MSA) value of 0.596 (>0.5) so that it can be concluded that the data can be processed further.

Table 4. Communalities Test

	Initial	Extraction
Monthly Income	1.000	.866
Number of children	1.000	.618
Mother's Age When Pregnant	1.000	.770
Maternal Age Childbirth	1.000	.726
Birth Distance	1.000	.778
Birth Weight	1.000	.699
Birth Body Length	1.000	.665
Complementary feeding	1.000	.598
Diarrhea	1.000	.798
Early Initiation of Breastfeeding	1.000	.795
Exclusive Breastfeeding	1.000	.565
Breastfeeding duration	1.000	.698
ARI incident	1.000	.711
Father's Education	1.000	.565
Mother's Education	1.000	.774
Father's occupation	1.000	.744
Mother's occupation	1.000	.875

Extraction Method: Principal Component Analysis.

Table 4 shows that of the 17 variables tested, all of them have communal values above 0.5, so that the seventeen variables can be analyzed further.

Table 5. Total Variance Explained

	Initial Eigenvalues			*Extraction Sums of Squared Loadings*		
Component	*Total*	*% of Variance*	*Cumulative %*	*Total*	*% of Variance*	*Cumulative %*
1	5.554	25.245	25.245	5.554	25.245	25.245
2	2.684	12.201	37.446	2.684	12.201	37.446
3	1.921	8.730	46.176	1.921	8.730	46.176
4	1.821	8.275	54.452	1.821	8.275	54.452
5	1.541	7.004	61.456	1.541	7.004	61.456
6	1.217	5.531	66.987	1.217	5.531	66.987
7	.857	3.893	75.861			
8	.754	3.426	79.286			
9	.698	3.173	82.459			
10	.639	2.903	85.362			
11	.550	2.498	87.860			
12	.491	2.233	90.094			
13	.459	2.088	92.182			
14	.353	1.605	93.787			
15	.338	1.535	95.322			
16	.307	1.396	96.718			
17	.221	1.003	97.721			

Extraction Method: Principal Component Analysis.

Table 5 shows that there are 6 factors that have an eigenvalue above one, meaning that from the 17 variables included in the factor analysis, 6 factors that influence the occurrence of stunting are formed. This shows that there is a grouping of a number of variables to a certain factor. The number of factors in this factor analysis is determined based on the cumulative proportion value. The translation of 17 variables into 6 formed factors is described in table 6

Tabel 6. Rotated Component Matrix[a]

	Component					
	1	2	3	4	5	6
Father's education	.650	.321	.028	.075	.103	-.085
Mother's education	.503	.155	.098	.368	-.306	.111
Father's occupation	.283	.199	.749	-.152	-.018	.050
Mother's occupation	.222	.069	.816	.025	.249	-.170
Income	.061	.233	.715	.218	-.140	.476
Number of children	-.044	.134	-.188	-.189	.726	-.006
Mother's age at pregnancy	.177	-.155	.210	.185	.226	.765
Maternal age	.045	-.047	.104	.103	.465	.661
Birth distance	.029	.084	.254	-.080	.831	.094
Birth weight	.120	.130	-.283	.034	.382	.481
Body length at birth	-.125	.174	.072	.184	-.183	.695
Early initiation of breastfeeding	.385	.389	.133	.429	.157	-.109
Complementary feeding	-.112	.204	.302	.641	.292	.289
Exclusive breastfeeding	.163	.105	.107	.827	.220	.064
Breastfeeding time	.174	.196	-.098	.664	.003	.193
Diarrhea incidence	.050	.810	.227	.179	.061	.085
Upper Respiratory Tract Infection incident	.052	.724	.061	.151	.295	.249

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 16 iterations.

Based on table 6, the distribution of the existing factors can be described as follows: Factor 1 consists of 2 factors, namely the education level of parents, namely father and mother with a loading value of 0.650 and 0.503. This factor is hereinafter referred to as the parental education factor. Factor 2 consists of two factors of disease incidence, namely diarrhea and upper respiratory tract infection with loading values of 0.810 and 0.724. This factor is named the history of infectious disease factors. Factor 3 consists of four factors, including the work of the father and mother with a loading value of 0.749 and 0.816. The next factor is family income with a loading value of 0.715. These factors are called economic factors. Factor 4 consists of four factors, namely early initiation of breastfeeding (IMD) with a loading value of 0.429, complementary feeding with a loading value of 0.641, exclusive breastfeeding with a loading value of 0.827 and the duration of breastfeeding with a loading value of 0.664. This factor is then called the breastfeeding factor. Factor 5 consists of two factors, namely the number of children and birth spacing with loading values of 0.726 and 0.831. This factor is called the family structure factor. Factor 6 consists of four factors, including maternal age during pregnancy, maternal age at delivery, birth weight and length of the baby's birth weight with loading values of 0.765, 0.661, 0.481 and 0.695. This factor is then called the nutritional factor of pregnant women.

DISCUSSION

Based on the research that has been done, it can be explained that the factors that influence the incidence of stunting in children under five in the coastal area of Pasuruan Regency include parental education factors, history of infectious disease factors, economic factors, breastfeeding factors, child growth factors and maternal health factors.

Parent's education

Parental education factors affect the incidence of stunting in toddlers in coastal areas. Several studies have proven the relationship between parental education and the incidence of stunting in toddlers. Based on the research of (Torlesse et al., 2016) the prevalence of stunting was higher among children whose parents completed primary education (43.4%) or junior secondary education (31.0%) compared to those who had completed high school (23.0%). The odds ratio of stunting in children was significantly greater among children. In a study conducted by (Rachmi et al., 2016) and (Beal et al., 2019) also found that there is a significant relationship between mothers with low education and the incidence of stunting in children under five (p value = <0.001), especially in rural areas. Fathers with low education have a 2.1 times risk of stunting at school age than fathers with higher education. In mothers with low education, this risk is 3.4 times greater. The average z-score of TB/U children with mothers with low education tends to be lower when compared to mothers with secondary and higher education (Jesmin et al., 2011). According to Jesmin et al., (2011) mothers with higher education have babies whose birth length is 0.5 cm longer than mothers with secondary education and 1.4 cm longer when compared to mothers with low education. Every 1 year increase in father's length of schooling will reduce the prevalence of stunting in children by 11%.

Education is closely related to health behavior. Education shapes health behavior in 3 ways, namely a) assisting understanding of knowledge and good health behavior; b) provide opportunities for employment and adequate income, c) provide opportunities for adequate social and psychological support. Investment in education is one way to break the chain of stunting problems. Parents who are highly educated have better opportunities to get jobs and decent incomes, so that the nutritional needs, health facilities,

education, environment and good parenting patterns for children will be met. People with higher education have the opportunity to get good social support from their environment and have more stable stress control. Higher education provides greater opportunities to capture information, including information and knowledge in the field of nutrition so that this knowledge is applied to good parenting for their children. Health and nutrition care in the first year of life is very important for a child's development. On the other hand, parents with low education tend to have limited knowledge and ability to apply knowledge, so that the risk of malnutrition and poor parenting in children is higher.

History of infectious disease

The results of the analysis show that a history of infectious diseases (diarrhea and upper respiratory tract infection) affects the incidence of stunting in children under five who live in coastal areas. These results are consistent with previous research conducted by (Hadi et al., 2019) which showed that infectious diseases can interfere with linear growth by first affecting the nutritional status of children under five. This happens because infectious diseases can reduce food intake, interfere with nutrient absorption, cause direct loss of nutrients, increase metabolic needs (Suiraoka, 2011). Research conducted by Asrianti, Afiah, Muliyana (2019) show the opposite result, that infectious diseases in children have no statistically significant effect on the incidence of stunting. This is possible because the history of infectious diseases studied is only in the last 6 months, while it is possible that there are toddlers who have experienced infectious diseases in the previous period and affect the growth and development of children. There is a back and forth interaction between nutritional status and infectious diseases. Malnutrition can increase the risk of infection, whereas infection can lead to malnutrition. If this condition occurs for a long time and is not immediately addressed, it can reduce food intake and interfere with nutrient absorption, thereby increasing the risk of stunting in children under five.

Economy

The results of the analysis show that economic factors affect the incidence of stunting in children under five in coastal areas. The results showed that children born to families with low economic status had a higher risk of suffering from malnutrition when compared to children from rich families (Akombi et al., 2017; Chirande et al., 2015; Siswati, 2018). Families with low socio-economic levels/poor have limited purchasing power and selection of quality food, so that children have a higher risk of malnutrition, the choice to live in a healthy and conducive residential environment. Poverty limits people from choosing adequate formal education, even though education is closely related to decent work and income (Braveman & Gottlieb, 2014). A survey in 36 middle-poor countries stated that a 5% increase in GDP/capita would reduce the risk of stunting by 1% (Vollmer et al., 2014; Mushtaq et al., 2011). Research conducted by Torlesse et al., (2016) also show that children from the lowest wealth quintile have more than twice the chance of being stunted than children from the highest wealth quintile (AOR 2.30; 95% CI 1.43-3.68).

Stunting is generally associated with lower overall socioeconomic conditions. The socioeconomic level of the family can be seen from the income in one family. The average income of coastal communities is still below the minimum wage. Economic status is the root of nutritional problems because it greatly affects the purchasing power of families, access to adequate education, quality health services and meeting adequate food needs. Families with limited income are likely to be less able to meet their food needs, especially to meet the nutritional needs of the child's body.

Breastfeeding

The results of the analysis show that breastfeeding affects the incidence of stunting in children under five in coastal areas. Impaired growth at the beginning of a baby's life, among others, caused by malnutrition since infancy, giving MP-ASI too early or too late, MP-ASI not having enough nutrition according to the baby's needs or poor pattern of giving according to age, and inadequate baby cares (Wahyuni et al., 2019).

Several studies have shown a relationship between early complementary feeding and the incidence of stunting. The magnitude of the risk of early complementary feeding (before 6 months) with the incidence of stunting is up to 3.6 times compared to complementary feeding given on time (6 months and above). On the other hand, exclusive breastfeeding for up to 6 months can protect children from stunting and growth faltering. Research by Dewey, et al., 1999 in Honduras published in Siswati (2018), stated that there was a difference in the average body length of children aged 6-26 weeks who were breastfed for 6 months and breast milk added with other foods at the age of 4-26 weeks. 6 months. Infants who were exclusively breastfed for 6 months had a body length of 4.5 cm longer than infants who were exclusively breastfed for 4 months and added other foods until the age of 6 months. Apart from being an element of growth factor, breastfeeding alone for 6 months can reduce the risk of gastrointestinal disease compared to breastfeeding for only 3 months (Mulyaningrum et al., 2021). Gastrointestinal disorders experienced by children will inhibit the absorption of food, if this happens for a long time and repeatedly, then the child will suffer from a lack of food intake so that it affects his nutritional status (Rahmawati et al., 2020). The results of research by Erika Fitria Lestari (2020) state that there is a relationship between exclusive breastfeeding and the incidence of stunting in toddlers. The result of simple correlation (r) shows the correlation between exclusive breastfeeding and the incidence of stunting (r) is 0.429 with a fairly strong correlation strength and shows a positive correlation. This means that the more children under five who receive exclusive breastfeeding, the lower the incidence of stunting in toddlers.

The low level of exclusive breastfeeding is one of the triggers for stunting in children under five which is caused by past events and will have an impact on the future of children under five, on the other hand good breastfeeding by mothers will help maintain a child's nutritional balance so that normal child growth is achieved. Toddlers who are given exclusive breastfeeding and complementary feeding according to their needs can reduce the risk of stunting. This is because at the age of 0-6 months, mothers of toddlers who provide exclusive breastfeeding can form immunity or immunity of toddlers so that they can avoid infectious diseases. After that, at the age of 6 months, children under five are given MP-ASI in sufficient quantity and frequency so that their nutritional needs are met which can reduce the risk of stunting.

Family Structure

Family structure is an environmental factor related to the incidence of stunting. The greater the number of toddlers and family members, the higher the risk of stunting in toddlers. Research by Candra (2018) states that the number of children > 2 is a risk factor for stunting (p = 0.002). Families that have many children, especially those with less economic conditions, will not be able to provide sufficient attention and food to all their children. The number of children and family members will affect the distribution of food, the higher the number, the higher the competition for food and other needs. Research conducted by Candra, (2018) also concluded that close birth spacing (<2 years) had an 11.65 times risk of becoming stunted compared to children with long birth spacing (= 2 years). Families with the number of children and the birth spacing of children that are too close can affect the nutritional status of children because mothers have difficulty in taking care of their children. Because parents find it difficult to divide their time and attention so that parenting is less than optimal. Family structure also affects the quality of relationships between family members. Families with a large number of children and birth spacing that are too close (<2 years) lead to limited time for mothers to pay attention to their children one by one, so that the nutritional needs and growth and development of children are neglected.

Nutrition for pregnant women

Nutrition of pregnant women affects the incidence of stunting. Nutrition during pregnancy is influenced by the age of the mother during pregnancy. Pregnancy at a young age is a precursor to stunting. The younger the age of pregnant women, the higher the risk of stunting in toddlers. The high risk of pregnancy aged 14-16 years for the incidence of stunting is 9.26 times compared to pregnancy aged 20 years, while at the age of 17-19 years the risk is 2.12 times (Win et al., 2013). In pregnancy in adolescence, there will be competition to meet the nutritional needs of the fetus and its mother. As a result, the mother does not grow optimally as an adult woman, and the fetus that is born tends to be small and short because its nutritional needs are not fulfilled (Erik et al., 2020). Stunting in toddlers will tend to stay until new children enter school, teenagers and even adults (Kamilia, 2019). The incidence of stunting that occurs at the age of under 6 months tends to persist for up to 2 years. In Indonesia, 4 out of 10 Indonesian children are short when they enter school and as many as 77% of toddlers who are stunted continue to be stunted in the pre-pubertal period (Aryastami, 2017). A research conducted by Aridiyah et al., (2013) showed different results, that there is a relationship between LBW status and the incidence of stunting. LBW conditions will not affect the growth of children under five if the child gets adequate intake and environmental conditions support the growth and development of children under five. Babies born to mothers who are malnourished during pregnancy will be born with a smaller size in terms of weight, length, abdominal circumference, head circumference and of course vital internal organs than babies whose nutritional needs are met. The fetus adapts by slowing down cell division due to lack of nutrients in the womb, resulting in a baby with low birth weight (LBW) and low birth length (LBW). Children born with low birth weight and low birth length in the future will have less anthropometric measurements in adulthood. Children under five who are born with low birth weight are more at risk for stunting than children born with normal weight.

LIMITATION OF THE STUDY

The research results in the first year obtained a descriptive description of the factors that cause stunting in toddlers in coastal areas. This study got several recommended items for doing modules on stunting. These findings were initial data for our study in future studies to be developed again for health cadres and used as an adjunct in learning with students.

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ETHICAL CONSIDERATIONS

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Conflict of Interest Statement

we certify that there is no actual or potential conflict of interest in relation to this article..

CONCLUSIONS AND SUGGESTIONS

There are 6 factors that influence the occurrence of stunting in children under five in the coastal area of Pasuruan Regency, namely parental education, history of infectious disease, economic, breastfeeding, family structure and nutritional factors for pregnant women. Based on the results of the above analysis, to improve and maintain good conditions for child growth it is important to strengthen the education of parents. Improving socioeconomic status and health education programs should be included in public health control and prevention strategies. In addition, it is necessary to provide adequate nutritional intake for stunting toddlers so that they can catch up to normal growth patterns in the next age period.

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