

ANALYSIS OF RISK FACTORS OF STUNTING IN KINDERGARTEN IN BORONG PA'LALA, GOWA REGENCY

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ABSTRACT

Constraints in meeting nutritional needs will bring a variety of impacts on child growth including *Stunting*. The purpose of this study was to analyze the risk factors for *stunting* in kindergarten in Borong Pa'la'la Village, Pattalassang District, Gowa Regency. The aim of this study to identify the relationship between risk factors (family socioeconomic, nutritional status, history of infectious diseases, and exclusive breastfeeding) with the incidence of stunting in kindergarten children in Borong Pa'la'la, Pattalassang District, Gowa Regency 2018. This research is a quantitative research using survey / census design. The population of this study was kindergarten students in the village of Borong Pa'la'la, Pattalassang Subdistrict, Gowa Regency. With the *Total Sampling* method, the total sample of this study was 30 people. To find out the relationship between independent variables and dependent variables *Chi-square* test was used. To see the dominant variables affecting *stunting*, the Logistic Regression test was used. The results showed that children with low socio-economic risk had a 13.714- times risk of stunting compared to children with sufficient family socio-economic (PR 13.714), children with poor nutritional status had a risk of 4.359 times stunting compared to children with good nutritional status (PR 4,359), children who have a history of infectious diseases have a risk of 10,500 times experiencing stunting compared to children who have no history of infectious disease (PR 10,500) and children who do not have a history of exclusive breastfeeding have a risk of 1,829 times experiencing stunting compared to children who have an exclusive breastfeeding history (PR 1,829). Suggestions for the research provided are the need to provide health information through continuous and continuous counseling about the importance of fulfilling the nutrition of infants / toddlers / children, environmental sanitation and food hygiene in an effort to prevent stunting and take action to improve nutrition in dealing with stunting children

Keywords : *Stunting*, Risk Factors, Kindergarten

INTRODUCTION

The General Assembly of the United Nations (UN) on September 25, 2015 in New York, United States, officially approved the Sustainable Development Agenda or SDGs as a global development agreement. Starting in 2016, the 2015-2030 Sustainable Development Goals (SDGs) formally replaced the Millennium Development Goals (MDGs) 2000-2015. SDGs contain a set of transformative goals that are agreed upon and apply to all nations without exception (Hoelman, 2015).

Indonesia places stunting cases in the main task of the Sustainable Development Goals (SDGs). Because, Indonesia is in the category of the most vulnerable countries to case deficiency nutrition together with countries in other African regions. In 2030 all countries in the world must complete all stunting children whose needs must be met. Its achievements, ending hunger and food security through improving nutrition supported by the promotion of sustainable agriculture.

Stunting or short stature is a chronic malnutrition in which there is a linear growth disorder in children. *Stunting* can also be interpreted as a very short body state that exceeds the deficit of -2 SD (Standard Deviation) below the median length or height of the population which is an international

reference (WHO). This situation can be measured based on body length index according to age (PB / U) or height according to age (TB / U). If the PB / U or TB / U z-score below -2.00 SD is classified as short (*stunted*), if the z-score of U / U below -3.00 is classified as very short (*severely stunted*). If the z-score of TB / U above -2.00 SD is classified as normal (PERSAGI, 2009). *Stunting* is the biggest global health threat to children's survival, especially in childhood and found a higher prevalence of *stunting* in children aged 24-59 months to reach 50%. Stunting starts when the fetus is still in the womb and only appears when the child is two years old (Millennium Challenge Account – Indonesia, 2015)

Stunting is a form of obstructed child growth process. Until now *stunting* is one of the nutritional problems that needs attention (Picauly and Toy, 2013). Risk factors for *Stunting* events are the processes of pathological changes (Sudiman, 2008). Physical growth is related to environmental, behavioral and genetic factors (Soetjningsih, 1995). Socio-economic conditions (Ramli et al, 2009), breastfeeding (Adair & Guilkey, 1997) and LBW events (Espo, et al, 2002) are behavioral and environmental factors that are associated with the incidence of stunting. Whereas constitutional factors as determinants of

stunting are maternal height and sex (Adair & Guilkey, 1997). Subramanian et al. (2009) stated that father and mother height were associated with a reduced risk of stunting in children.

Stunting prevalence in Indonesia is higher than other countries in Southeast Asia, such as Myanmar (35%), Vietnam (23%), and Thailand (16%). Based on Riskesdas (2013), the short national prevalence was 37.2%, which meant an increase compared to 2010 (35.6%) and 2007 (36.8%). Short prevalence of 37.2% consisted of 18.0% very short and 19.2% short. In 2013 the very short prevalence showed a decline, from 18.8% in 2007 and 18.5% in 2010. The short prevalence increased from 18.0% in 2007 to 19.2% in 2013 while in 2010 it was 17.1 %.

Public health problems are considered severe if the prevalence is short at 30–39% and is serious if the prevalence is short $\geq 40\%$ (WHO 2010). A total of 13 provinces are included in the heavy category, and as many as 15 provinces are in the serious category. The 15 provinces are: Papua (40.1%), Maluku (40.6%), South Sulawesi (40.9%), Central Sulawesi (41.0%), North Maluku (41.1%), Kalimantan Central (41.3%), Aceh (41.5%), North Sumatra (42.5%), Southeast Sulawesi (42.6%), Lampung (42.6%), South Kalimantan (44.2%), West Papua (44.7%), West Nusa Tenggara (45.2%), West Sulawesi (48.0%) and East Nusa Tenggara (51.7%).

Some research on the factors that cause *stunting* among others: research conducted by Anisa (2012) regarding the factors associated with the incidence of stunting in children aged 25-60 months in Depok Kalibaru urban village in 2012, found the infant with low birth weight have a chance of 12.789 times becoming *stunting* compared to toddlers who have normal birth weights. Research conducted by Medhin (2010) shows that birth weight is a significant predictor in the incidence of *stunting* in 12-month-old infants. According to Hien and Hoa (2009) LBW is an important risk factor for the incidence of *stunting* in children aged <3 years in Vietnam. Research conducted by Nojomi et al. (2004) found that there was a relationship between LBW and *stunting* in infants and according to Arifin, et al. (2013) toddlers with low birth weight had a risk 2.3 times more likely to be *stunted* than toddlers with birth weight normal.

Looking at the above problems, the

researchers were interested in researching "Analysis of risk factors for the incidence of *stunting* in kindergarten children in the village of Borong Pa'la'la, Pattalassang District, Gowa Regency in 2018".

RESEARCH METHODS

Types and Design of Research

This research is a quantitative research using survey design / design (census).

Location and Time of Research

Research location at Amal Jariyah Kindergarten, Borong Pa'la'la Village, Pattalassang District, Gowa Regency . This research was conducted for 4 months, starting from June to September 2018.

Population and Samples

The population in this study were all kindergarten students Jariyah Charity in the village Borong Pa'la'la Pattalassang District of Gowa, amounting to as many as 30 people using *total sampling* technique.

Data Research and Analysis Instruments

The instrument used in data collection in this study was a nutritional status monitoring questionnaire (PSG 2015) from the Directorate General of Nutrition and Maternal Health and Child Health of the Republic of Indonesia that has been modified with a number of additions and reduction of item questions according to the research intent. To find out the independent variable, namely the problem of stunting, use a height gauge . Body weight is measured by weight scales with accuracy of 50 grams and height / body length with a *microtoise / length measuring board measuring* 0.1 cm in accuracy. The measurement results are then translated into Z scores based on anthropometric index weight / age (BB / U) and height / age (TB / U) .

Processing and analysis of data

To make it easier to calculate the z-score of the researcher using WHO Anthro v3.2.2 software for children under five and WHO AntrhoPlus v1.04 children over 5 years. Which can then be known the status of the child belonging to the category of normal or stunting. Similarly, the nutritional status of children can be seen from the value obtained from the application used both from the score of z score based on BB / age or looking at the graph displayed in the

application.

To find out the relationship between independent variables and dependent variables, *Chi-square* test was used and to see the variables that predominantly influence *stunting*, the Logistic Regression test was used.

RESEARCH RESULTS

Characteristics of respondents consisting of age, gender, social economy, nutritional status, **History of infectious diseases**, **Exclusive breastfeeding**, and **Stunting event** are presented in table 1.

Table 1
Characteristics of respondents

Characteristics of Respondents	Frequency	Percentage (%)
Age		
≤ 60 months	13	43.3
> 60 months	17	56.7
Gender		
Man	17	56.7
Women	13	43.3
Family social economy		
Low	14	46.7
Enough	16	53.3
Nutritional status		
Less	13	43.3
Well	17	56.7
History of infectious diseases		
Yes	16	53.3
Not	14	46.7
Exclusive breastfeeding		
Not	14	46.7
Yes	16	53.3
Stunting event		
Stunting	13	43.3
Normal	17	56.7

Based on the results of the study it was found that more than half the number of respondents aged > 60 months with a total distribution of 17 respondents (56.7%), with the majority being male namely 17 people (56.7%).

Whereas from the aspect of research variables, respondents with sufficient

socioeconomic conditions were the respondents with the highest number of respondents, namely 16 respondents (53.3%), good nutritional status with 17 respondents (56.7%), having infectious diseases (5- 8 times or more in 1 year) with the highest number of 16 respondents (53.3%), having a history of exclusive breastfeeding with a total of 16 respondents (53.3%). And belonging to the normal height category is the respondent with the highest number, 17 respondents (56.7%).

The results of bivariate analysis showed that there were socioeconomic influences on the incidence of under-five stunting at Amal Jariyah Kindergarten Sumbarrang Hamlet, Borong Pa'la'la Village, Pattalassang Subdistrict, Gowa Regency (table 2), namely 12 respondents (40%) who had low socioeconomic families and stunting and only 2 respondents (6.7%) had low family socio-economic conditions and toddlers had height according to age (TB / U) in the normal category. Likewise, there were 15 respondents (50%) who had sufficient socio-economic conditions and children under five were classified as normal based on TB / U and only 1 respondent (3.3%) had stunting. N use values Prevalence Ratio (PR) 13.714 show that children who have a low socio-economic conditions of greater risk of stunting as much as 13-fold compared to children who have enough socio-economic conditions.

From the aspect of nutritional status factors (table 3), it was found that there was an effect of nutritional status on the incidence of under-five stunting at the Amal Jariyah Kindergarten in Sumbarrang Hamlet, Borong Pa'la'la Village, Pattalassang Subdistrict, Gowa Regency, namely 10 respondents (33.3%) who had poor nutritional status and toddlers experienced stunting and only 3 respondents (10%) who lack nutritional status and toddlers have height according to age (TB / U) which is a normal category. Likewise, there were 14 respondents (46.7%) who had good nutritional status and toddlers classified as normal based on TB / U and only 3 (10%) had stunting. Prevalence Ratio (PR) value of 4,359 indicates that children who have a condition of low nutritional status / malnutrition are more at risk of experiencing stunting 4 times more than children who have good nutritional status.

Whereas from infectious disease

history (table 4), there was an influence of infectious disease history on the incidence of under-fives stunting Amal Jariyah Kindergarten Sumbarrang Hamlet, Borong Pa'la'la Village, Pattalassang Subdistrict, Gowa Regency, namely 12 respondents (40%) who had a history of infectious diseases and toddlers experiencing stunting and only 4 respondents (13.3%) who had a history of infectious diseases and toddlers did not experience stunting (normal). Similarly, there were 13 respondents (43.4%) who did not have a history of infectious diseases and children under five were classified as normal based on TB / U and only 1 (3.3%) had stunting. The Prevalence Ratio (PR) value of 10,500 indicates that children who have a history of infectious diseases are more at risk of stunting by 10,500 times than children who have no history of infectious diseases Different things were found in the factors of Exclusive Breastfeeding history (table 5), where there was no significant influence

between the history of Exclusive Breastfeeding on the incidence of toddler stunting Amal Jariyah Kindergarten Sumbarrang Hamlet, Borong Pa'la'la Village, Pattalassang District, Gowa Regency, there were 8 respondents (26.7 %) who do not have a history of exclusive breastfeeding and toddlers have stunting and 6 respondents (20%) who do not have a history of exclusive breastfeeding and toddlers do not experience stunting (normal). Similarly, there were 11 respondents (36.7%) who were have a history of exclusive breastfeeding and toddlers classified as normal based on TB / U and 5 respondents (16.6%) experienced stunting. N use values Prevalence Ratio (PR) 1,829 shows that child that not have a history of exclusive breastfeeding only have a risk of stunting of 1.829 times compared to having Exclusive breastfeeding history for children who has a history of exclusive breastfeeding.

Table 2
Cross tabulation of family socio-economic factors with the incidence of stunting

Social Economy	Stunting in Kindergarten				Total	%	p-value	PR
	Stunting	%	Normal	%				
Low	12	40	2	6.7	14	46.7	0,000	13,714
Enough	1	3.3	15	50	16	53.3		
Total	13	43.3	17	56.7	30	100		

Table 3
Cross tabulation of nutritional status factors with the incidence of stunting

Nutritional status	Stunting in Kindergarten				Total	%	p-value	PR
	Stunting	%	Normal	%				
Less	10	33.3	3	10	13	43.3	0.004	4,359
Well	3	10	14	46.7	17	56.7		
Total	13	43.3	17	56.7	30	100		

Table 4
Cross tabulation of history of infectious disease with the incidence of stunting

History of Infectious Diseases	Stunting in Kindergarten				Total	%	p-value	PR
	Stunting	%	Normal	%				
Yes	12	40	4	13.3	16	53.3	0.001	10,500
Not	1	3.3	13	43.4	14	46.7		
Total	13	43.3	17	56.7	30	100		

Table 5

Cross tabulation of exclusive breastfeeding history factors with the incidence of stunting

Exclusive breastfeeding	Stunting in Kindergarten				Total	%	p-value	PR
	Stunting	%	Normal	%				
Not	8	26.7	6	20	14	46.7	0.290	1,829
Yes	5	16.6	11	36.7	16	53.3		
Total	13	43.3	17	56.7	30	100		

A multivariate analysis with a parameter significance test (simultaneous test) is obtained the coefficient of determination (R^2) of logistic regression for 0894 so that it can be said that the ability of the socioeconomic variables, nutritional status and history of infectious diseases in explaining the variable incidence of stunting is equal to 0894, or 89.4%. And there are 10.6% other factors outside the model that explain the dependent variable (the incidence of stunting) with an *overall percentage* value of 90%, which means the accuracy of the prediction model of this study is 90%.

Likewise, the model compatibility test was conducted to evaluate the suitability of the model with the data and fulfill the *Goodness of Fit (GOF)*. This test uses the Hosmer and Lemeshow test. Obtained a calculated Chi-square value of 3.586 < 9,488. The same thing by looking at the significance value of the statistical test that is equal to 0.465 > 0.05, so it can be concluded that H_0 is accepted which means the empirical data is suitable or in accordance with the model or in other words there is no difference between the model and the data so that the model is said to be fit and feasible.

DISCUSSION

1. The relationship between family socioeconomic status and the incidence of stunting.

The results of the bivariate analysis of the influence of family socioeconomic status on the incidence of stunting show the value of PR (r prevalence ario) amounted to 13.714, which means that toddlers / children from poor socioeconomic families are more at risk of stunting by 13,714 times than toddlers / children with sufficient family economic status

The amount of income obtained or received by a household can illustrate the welfare of a community. However, accurate data is difficult to obtain, so an approach is carried out household expenses. Household expenditure can be differentiated according

to food and non-food expenditure, which describes how the population allocates their household needs. Expenditures for food and non-food consumption are closely related to people's income level. In developing countries, meeting food needs is still a top priority, due to meeting nutritional needs (consumption and cost).

The cause of nutrition problems, income is included in the root cause of the problem of nutritional problems where income that is less or inadequate causes problems in terms of access to nutritious food which affects food intake / lack of nutrition which directly causes nutritional problems in this case stunting.

This research is in line with the results of Farah et al 2015's research, where the results of the analysis show that there is a significant relationship between family income towards the incidence of stunting in children under five both in rural and urban areas (Aridiyah FO, Rahmawati N. & Ririanty M in Rahmawati, Yeni Paramata, 2017) . Similar to other studies that state that low family economic status in North Maluku is significantly associated with the incidence of stunting and severe stunting in infants aged 0–59 months (Ramli, Agho KE et al, 2009 in Rahmawati , Yeni Paramata, 2017).

This is in accordance with Sulistyoningsih's opinion that increasing income will increase the opportunity to buy food with better quality and quantity, whereas a decrease in income will cause a decrease in the purchasing power of food both in quality and quantity (Sulistyoningsih, H. 2011 in Rahmawati , Yeni Paramata, 2017).

The results of other studies state that parents' socio-economic influence on nutritional status is very influential, while socio-economic inequality based on per capita income or household asset-based income shows relative influence on nutritional status (*stunting*). The ratio of decreasing *stunting* nutritional status when high socioeconomic in 1974-1975 is 4.9 and

the ratio of *stunting* nutritional status increases if the economic status is low to 7.7 in 1989, then the ratio of *stunting* nutritional status decreases sharply to 2.6 if the economic status high in 2006-2007. The results of this decline indicate that low socioeconomic status indicates poor nutritional status, and high socioeconomic status indicates good nutrition (Monteiro C, et al, 2010 in Aramico, Sudargo, & Susilo, 2013).

Martha, 2014 stated that the proportion of children under five experiencing moderate and severe growth disturbances came mostly from families with low economic levels. The proportion of short-term toddlers at moderate and severe levels increases with decreasing levels of formal education of fathers and mothers. Mothers who have good education have the opportunity to have good jobs that can increase income, besides that mothers will have good health knowledge, good parenting and will use health services to improve their children's health. Likewise, the background of the father and mother who did not work was the originator of the highest proportion of children under five who experienced moderate to severe events. Thin events in children under five according to economic status show the same thing with short events according to economic status (Pei, Leilei et al., 2014 in Martha, 2014).

In this study, it was shown that families with low income below the provincial minimum wage or based on district expenditure per capita were more stunting, compared to the provincial minimum income wages (UMP) of high-income families with less stunting.

Average monthly expenditure per capita is the cost incurred for the consumption of all household members for a month divided by the number of household members . The expenditure in question is per capita expenditure for food and not food. Food includes all types of food including processed foods, beverages, tobacco and betel nut. Non-food includes housing, clothing, medical expenses, school and so on. This means that more and more family dependents will have an impact on the costs that must be paid by the family for food costs, including the cost of fulfilling the nutrition of family members.

2. The relationship between nutritional status and the incidence of stunting

The results of bivariate analysis showed

PR (prevalence risk) value of 4.359, which means that toddlers / children with poor nutritional status were more at risk of stunting 4,359 times folding compared to toddlers / children with good nutritional status

In general, it can be said that between economic improvement and improvement in nutritional status have a reciprocal relationship. Good economic conditions and supported by good parent education will be able to provide good quality and quantity of food and will improve access to health services.

According to UNICEF (1990) in (Martha, 2014) dividing the factors that influence malnutrition into three groups, namely the direct, indirect, and factors underlying the two factors. Direct causes include food consumption and infection while indirect causes are the availability and patterns of food consumption in the household, the pattern of child care, and the range of quality of health services. The factors underlying the two factors are social, political and economic.

Direct causes include the amount of food consumption and the composition of nutrients according to balanced nutritional needs. Food consumption is influenced by food availability at the macro and micro level. Availability of food at the macro level is indicated by the level of national production and food reserves at regional and local levels. At the micro level, the amount of sufficient food and affordable prices will have an impact on food consumption in the household. In infants less than 6 months old food that meets the adequacy of balanced nutrition is breast milk. After 6 months of age, babies need additional intake besides breast milk which is complementary food for breast milk. In addition to food consumption, infection is also a direct cause of malnutrition in children. Infections such as ARI, tuberculosis, malaria, dengue fever and HIV / AIDS can affect the absorption of nutritional intake which makes malnutrition poor. Poor and poor nutrition can weaken the body's resistance, making children more vulnerable to infection. Both of these are closely related to the nutritional status of children.

Indirect causal factors include the availability and patterns of food consumption in the household, the pattern of childcare and the quality coverage of health services. These three factors affect food consumption

and infectious diseases in children. The low quality of food consumption in households is due to the lack of access of households and communities to food, both access due to the amount of food availability and the level of income that affects household purchasing power. The child care pattern includes breastfeeding, complementary breastfeeding, and hygienic behavior and actions to seek health services to support good nutrition. This is influenced by education, health services, information, family planning services, and community institutions for women's empowerment. Factors that underlie and play a role in the direct and indirect causes of economic, political and social stability. Efforts to overcome the problem of malnutrition and bad are based on economic, social and political development that can reduce the poverty level of each household so that it can create food and nutrition security and provide access to education and health services.

Nutritional problems not only begin when the child was first exposed to dense food consumption of the family, but long before the birth of racing u han will be the adequacy of nutrition and nutritional be a determining factor in the future growth of children.

The World Health Organization (WHO) states that 20% of the symptoms of stunting have occurred when the baby is still in the womb. Means, stunting itself is closely related to nutritional intake when the mother is pregnant. The condition of the symptoms of stunting caused by this period of pregnancy is because the nutritional intake during pregnancy is of poor quality, so the nutrients received by the fetus are few.

Health programs from pregnant women to two-year-old children are important to overcome this. The existence of the 1,000 Day First Life Program (HPK), became a golden opportunity to improve child nutrition and prevent "stunting". Focus on 1000 First Days of Life because at 1000 HPK (270 days of pregnancy and the first 730 days after birth / 2 years) is a critical period of growth and development of body organs. When the first 8 weeks of pregnancy are formed all the forerunners will be the brain, heart, heart, kidney, bones, and others. 9 weeks of pregnancy until birth is a period of further growth and development of the body's organs ready to live in a new world outside the womb. During the first 1000 days of life,

the changes that occur are permanent and have an effect on the next two generations, from grandmothers to grandchildren, which will have a long-term impact.

There are some specific interventions or interventions that can be done to improve children's nutrition, namely by targeting pregnant women through supplementary feeding to pregnant women to overcome chronic energy and protein deficiencies, overcome iron deficiency and folic acid, overcome iodine deficiency, cope with worms in pregnant women, and protect pregnant women from Malaria. This is important because when you are pregnant, there is usually a desire that is always referred to as the baby's desire, even though the baby cannot ask for food. Mothers tend to be more desires and not needs, even though the needs of pregnant women are sufficient nutrition to give birth to healthy babies which will determine the growth of infants and children in the future, including determinants of stunting conditions that will occur later.

3. Relationship between history of infectious disease and incidence of stunting

The results of bivariate analysis showed PR (prevalence risk) value of 10,500 which means that children under five / children who have a history of infectious diseases, are more at risk of stunting by 10,500 times than toddlers / children who have no history of infectious diseases.

Malnutrition and infections often occur at the same time. Malnutrition can increase the risk of infection, while infections can cause malnutrition. Malnourished children who have low immune system will easily fall ill and experience malnutrition, thereby reducing their ability to fight diseases and so on. Disease and the late growth of children in undeveloped countries is the complexity of mutually encouraging reciprocal relationships or synergism between nutritional status and infection (Suhardjo. 2010 in Hariyati., 2016)

According to Sulistyoningsih, 2011 that health status (especially infection) will have an impact on individual nutritional status. The results of the 2016 Hariyati study showed that the most dominant variables related to and had an influence on nutritional status and ultimately could influence the growth of ballit in the future is a history of infectious diseases ($p = 0.025$ with OR: 2.38 and CI; 1.11-5.08) Of the total

sample, 58.6% of children who had a history of infectious diseases, such as diarrhea and ARI, were included in the sample group with the category of underweight and very thin nutritional status. This is due to the low understanding of parents about hygiene and sanitation and the importance of cleanliness of the surrounding environment to children's health. From the results of interviews with respondents, information was obtained that the average sample with the most cases of diarrhea was a sample with low parents' income and the level of household hygiene was far from what was expected.

High incidence of infectious diseases, such as diarrhea and ARI, is caused by parents' lack of awareness of the importance of hygiene and sanitation to nutritional intake for children. The understanding of parents is also lacking in preparing household food needs. In addition, the spread of bacteria and viruses is also transmitted through the media or the people closest to the subject of research. This is according to what was stated by Adisasmito W, 2007 in Hariyati., 2016 that environmental factors, such as unclean water facilities are also the cause of diarrhea and infectious diseases. In this study, most children experience nutritional problems due to exposure to viruses and bacteria so that they are at risk of infectious diseases and have an impact on weight loss and loss of appetite for children and also have a long-term impact on the occurrence of stunting in infants / children. On average in rural areas, poor sanitation in the household environment is relatively common so that infectious diseases are very easy to attack infants and toddlers which causes a lack of nutritional intake (Rosha BC, Hardinsyah, Baliwati YF, 2012 in Hariyati, 2016).

Research conducted by Dewi & Adhi, 2016 states that a history of infectious diseases, including diarrhea, is one of the dominant risk factors for the incidence of stunting (Dewi IAKC, Adhi KT, 2016 in Chamilia & Nindya, 2017).

Another contributing factor is hygiene practices. Poor hygiene practices pose a high risk of bacterial emergence. These bacteria will enter the child's body through foods that are usually served at home and can have an impact on the health of the child, one of which is the emergence of diarrheal diseases and can cause children

to lose fluids and a number of nutrients that are essential for the body (Welasih BD, Wirjatmadi B. 2012). A child affected by diarrhea will experience nutrient malabsorption and the duration of diarrhea that lasts longer (more than four days) will make the child experience more nutrient loss, if not followed up immediately and balanced with the appropriate intake of food occurs failure (Nasikhah R, Margawati A, 2012 and Weisz A, Meuli G, et al, 2011)

In this study obtained from a total of 30 respondents there were 16 respondents (53.3%) who had riot infections that occurred 5-8 times or more in 1 year which are usually in the form of diarrhea and ARI. Of the 16 respondents, 12 respondents (40%) who had a history of infectious diseases and toddlers were stunted and only 4 respondents (13.3%) had a history of infectious diseases and toddlers did not experience stunting (normal). Similarly, there were 13 respondents (43.4%) who did not have a history of infectious diseases and children under five were classified as normal based on TB / U and only 1 (3.3%) had stunting.

The results of this study are in line with Lestari's (2014) study that children who have a history of infections such as ARI and diarrhea are at high risk of becoming stunting than children who have never had ARI and diarrhea. Diarrhea is an infectious disease that often affects children. If children experience diarrhea continuously or children with dysentery are very dangerous because it can cause dehydration or loss of fluid so that infectious diseases have a negative impact on the nutritional status of children in terms of reducing appetite and absorption of nutrients. ISPA is characterized by the discharge of mucus from the nose so that breathing is interrupted and coughing causes the throat to feel bad. Children will experience a decrease in appetite resulting in a lack of food intake (Misnadiarly, 2008 in Saravina, 2017)

4. The relationship between exclusive breastfeeding and the incidence of stunting

The results of bivariate analysis showed PR (prevalence risk) value of 1.829, which means that children under five / children who were not given exclusive breastfeeding were only at risk of experiencing stunting as much as 1.829

times compared to toddlers / children given exclusive breastfeeding.

The lack or absence of the influence of exclusive breastfeeding on the risk of stunting occurrence in toddlers / children of Amal Jariyah Kindergarten in Sumbarrang Hamlet, is probably due to the mother's habit and patency in providing complementary food for breast milk (MP-ASI). MP-ASI is a food or drink that contains nutrients, given to children aged 6-24 months, to meet nutritional needs other than ASI (Ministry of Health, 2006). So that even though the results of the study showed that there were 14 respondents (46.7%) who did not give exclusive breastfeeding and 16 respondents (53.3%) who had a history of exclusive breastfeeding but statistically did not show a causal relationship.

The results of this study are in line with the findings of research conducted by Permadi, Hanim, Kusnandar, & Indarto, 2017 that the practice of giving MP-ASI is not related to the incidence of stunting. There was no difference in the practice of giving breast milk to stunting and non-stunting children, which caused the relationship between the two to be insignificant.

One of the causes of stunting is the delay in the initiation of early breastfeeding (IMD), non-exclusive breastfeeding and too fast weaning of breast milk (Stewart CP, et al, 2013 in Permadi, Hanim, Kusnandar, & Indarto, 2017). From research conducted in Bhutan regarding the factors that caused stunting it was concluded that children who did not get IMD were more at risk of stunting 9.5 times than those who received IMD4. The research conducted by Safari regarding exclusive breastfeeding to infants concluded that there were significant differences between the height of children who received exclusive breastfeeding and those who did not get exclusive breastfeeding (Safari JG, Kimambo SC, and Lwelamira JE, 2013 in Permadi, Hanim, Kusnandar, & Indarto, 2017).

The results of research conducted by Permadi, Hanim, Kusnandar, & Indarto, 2017 also stated that Early Breastfeeding Initiation (IMD) and exclusive breastfeeding, together affected the incidence of stunting, but the biggest variable affecting the incidence of stunting was exclusive breastfeeding seen from OR

values the biggest among other variables. Children aged 6-24 months who did not get exclusive breastfeeding were at risk of experiencing a stunting incidence of 7.86 times higher than children aged 6-24 months who received exclusive breastfeeding. The variable value of the R square has an independent variable meaning in the model, namely IMD, exclusive breastfeeding, explaining the dependent variable, namely the incidence of stunting of 29.7 percent.

The results of this study are in line with research conducted in the city of Yogyakarta which states that there is a significant relationship between IMD and the incidence of stunting ($p < 0.05$) 9. The study conducted by Aini on 50 stunting and non-stunting children concluded that administration of IMD at birth was associated with the incidence of stunting in infants 0-24 months. Early breastfeeding initiation is a factor that can prevent the incidence of stunting in infants (Aini NA, Aritonang T, and Siswati T, 2013 in Permadi, Hanim, Kusnandar, & Indarto, 2017). The study that analyzed the relationship between breastfeeding and nutritional status in Kenya's Naerobi concluded that there was a significant relationship between delaying the administration of IMD and the incidence of stunting in children aged 0-24 months (Muchina EN, and Waithaka PM, 2010 in Permadi, Hanim, Kusnandar, & Indarto, 2017).

Mother's milk that comes out on the first day of birth contains colostrum. Colostrum is rich in antibodies and important substances for intestinal growth and resistance to infections that are needed by babies for their survival (Roesli U, 2008 in Permadi, Hanim, Kusnandar, & Indarto, 2017). Colostrum has the highest concentration of protein and immunoglobulin. Immunoglobulin found in colostrum is immunoglobulin A (IgA) which protects the baby's gastrointestinal surface against various pathogenic bacteria and viruses (Indonesian Pediatrician Association, 2009 in Permadi, Hanim, Kusnandar, & Indarto, 2017). Colostrum contains leukocytes as much as 5×10^6 cells per mL, and will decrease with the length of breastfeeding. Leukocytes in the form of macrophages and neurofils, which can fight pathogenic microbes Lymphocytes contain t cell and β cells that produce antibodies, 10

percent leukocytes. In addition colostrum produces immune cells containing lysozyme enzymes to inhibit the growth of various types of bacteria (Jackson KM, and Nazar AM, 2006 in Permadi, Hanim, Kusnandar, & Indarto, 2017).

Research in Bangladesh using the cross sectional method concluded that there was a positive relationship between breastfeeding and an increase in the growth of child height (Khatoun T, et al, 2011 in Permadi, Hanim, Kusnandar, & Indarto, 2017). Research conducted by Haschke with a case control method in 20 developing countries, there were differences in growth between children who were exclusively breastfed and not exclusive breastfeeding (p <0.05) (Haschke F, et al, 2013 in Permadi, Hanim, Kusnandar, & Indarto, 2017). Exclusive breast milk helps prevent the incidence of malnutrition in children aged 0-24 months. Breast milk exclusive can prevent stunting or failure to thrive (World Health Organization, 2013). The content of lactoferrin in breast milk serves to bind iron to inhibit bacterial growth, besides that the peroxidase enzyme in breast milk can destroy pathogenic bacteria (Indonesian Pediatric Association, 2009). Mother's milk produces TGF β (Transforming Growth Factor Beta) protein which will balance pro-inflammatory and anti-inflammatory so that the intestines can function normally (Verduci E, et al, 2014 in Permadi, Hanim, Kusnandar, & Indarto, 2017). Mother's milk also contains growth factors (IGF-1, EGF, TGF α) which function to improve the adaptation of the baby's digestive tract by stimulating cell growth in the digestive tract, cell maturation, and forming bacterial colonies.

CONCLUSION

1. Children with low socioeconomic families have a 13.714-fold risk of experiencing stunting compared to children with sufficient socio-economic families (PR 13,714)
2. Children with poor nutritional status have a risk of 4.359 times experiencing stunting incidence compared to children with good nutritional status (PR 4.359)
3. Children who have a history of infectious disease have a 10,500-fold risk of experiencing stunting compared to children who have no history of infectious disease (PR 10,500)

4. Children who did not have a history of exclusive breastfeeding had a 1.829-fold risk of experiencing stunting compared to children who had a history of exclusive breastfeeding (PR 1,829)
5. Independent variables (socio-economic, nutritional status, and history of infectious diseases) jointly influence (simultaneous) on the dependent variable (incidence of stunting).

SUGGESTION

1. For Institutions, it is hoped that they will be more intensive and actively involved in collaborating to hold regular counseling on the causes and effects of stunting for the future of children both within the family and the wider community.
2. For related parties, especially the health office / health center and local government, it is hoped that this research can be a source of information about real conditions in the community, especially in terms of child stunting problems, so that health programs can be more appropriately directed and directed, especially can provide information on the importance fulfillment of nutrition of infants / toddlers / children, environmental sanitation and food hygiene in an effort to prevent stunting and can take action to improve nutrition in dealing with children who have suffered stunting
3. For families / parents
Through this research, it is expected to be able to provide information and knowledge to parents, especially for those who have children in infancy to pay attention to the intake of quality and quantity of food given to children, creation of a clean and healthy atmosphere, and active health services such as participating in KMS (Card Towards Healthy) growth monitoring program, MCH (Maternal and Child Health), or KKA (Child Development Card) and other health records.
4. For further researchers, it is hoped that it will further enlarge the research sample and develop research variables on broader elements so as to increase the possibility of the significance of each independent variable on the dependent variable and provide a clearer and more comprehensive picture of stunting as a serious threat to the nation's future.

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