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ANALYSIS OF FACTORS ASSOCIATED WITH STUNTED GROWTH IN CHILDREN AGED 12-60 MONTHS LIVING IN LENDA VILLAGE, MANGGARAI REGENCY, NTT

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ABSTRACT

Stunting is one of the main health problems in Indonesia resulting from poor nutrition. Stunted growth can have a negative impact on children's development and long-term growth. The prevalence of stunted growth in NTT Province in 2017 reached 22.30%. Lenda Village became the priority village for an integrated stunted growth prevention program in 2018. The purpose of this study was to determine the factors associated with the incidence of stunted growth in children aged 12-60 months (n = 82) in Lenda Village, from October 2018-April 2019 using a cross-sectional study. The sample technique used was purposive sampling.The instruments used were: a questionnaire (including demographic data, birth history, diarrhea, mother's knowledge), microtoise and weight scales.The analysis data involved a chi-square test and binary logistic regression. The results showed that most children were stunted (58 children (70.7%)). There was a significant association between exclusive breastfeeding (AOR = 5.193, 95 % CI= 1.275-21.158, p = 0.022), immunization status (AOR= 0.110, 95 % CI = 0.025-0.477, p =0.003), diarrhea (AOR = 13.386, CI 95 % = 2.270-78.949, p= 0.004), knowledge (AOR = 0.049, 95 % CI = 0.008-0.290, p= 0.001) and stunted growth. Integrated stunted growth management needs to be provided through cross-sectoral collaboration to increase the coverage of health care providers, improve sanitation, increase the level of maternal knowledge and improve health outcomes during both antenatal and postnatal care.

Keywords: Stunted growth, Exclusive Breastfeeding, Immunization, Diarrhea, Knowledge.

ABSTRAK

Stunting menjadi salah satu masalah gizi utama di Indonesia. Stunting berdampak pada perkembangan dan pertumbuhan anak. Prevalensi stunting di Provinsi NTT pada tahun 2017 mencapai 22,30 %. Desa Lenda menjadi desa prioritas penanganan stunting terintegrasi tahun 2018.Tujuan penelitian ini untuk mengetahui faktor-faktor yang berhubungan dengan kejadian stunting pada anak usia 12-60 bulan (n=82) di Desa Lenda, pada Oktober 2018-April 2019 dengan menggunakan cross-sectional study.Teknik sampel yang digunakan adalah purposive sampling. Instrumen yang digunakan adalah kuesioner (data demografi, riwayat kelahiran, riwayat diare, pengetahuan), microtoise dan timbangan berat badan. Analisis data menggunakan uji chi-sguare dan regresi logistik binary. Hasil penelitian menunjukan sebagian besar anak mengalami stunting yaitu 58 (70,7%). Hasil regresi logistik binary menunjukkan faktor–faktor yang signifikan berhubungan dengan kejadian stunting yaitu ASI ekslusif (AOR = 5.193, 95 % CI= 1.275-21.158, p value 0.022), status imunisasi (AOR= 0.110, 95 % CI = 0.025-0.477, p value 0.003), diare (AOR = 13.386, CI 95 % = 2.270-78.949, p value 0.004), pengetahuan (AOR = 0.049, 95 % CI = 0.008-0.290, p value 0.001). Penanganan stunting terintegrasi sangat diperlukan melalui kerjasama lintas sektoral mencakup pelayan kesehatan, peningkatan sanitasi, pengetahuan dan kesehatan ibu selama antenatal dan postnatal.

Kata Kunci: Stunting, ASI Ekslusif, Imunisasi, Diare, Pengetahuan

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INTRODUCTION

Nutritional problems have a have a serious impact on human health in Indonesia. The World Health Organization (WHO, 2012) states that children aged under five are vulnerable to malnutrition, which can result in stunted growth. Stunted growth has an impact on intelligence, vulnerability to disease, it results in decreased productivity, inhibits economic growth, increases poverty and social inequality. Stunted growth that occurs in childhood can result in increased rates of mortality, decreased cognitive ability and low development and unbalanced bodily functioning. Children who experience severe stunted growth in the first two years of life have a very strong likelihood of experiencing cognitive delays in childhood and have a long-term impact on human resource quality (Brinkman, Pee, Sanogo, Subran, & Bloem, 2010).

The Health Development priority program for the period 2015-2019 is implemented through the Healthy Indonesia Program through realizing a healthy paradigm, strengthening health services and providing national health insurance (Ministry of Health, 2018). One of these health development programs is focused on reducing the prevalence of stunted growth. The target of decreasing the prevalence of stunted growth (short and very short) in children under two (under 2 years) is to 28% (RPJMN, 2015 - 2019). Efforts to realize this healthy paradigm are carried out through a family approach and a healthy life movement.

The incidence of mortality in children under five is one of the most serious nutritional problems globally. Based on (UNICEF, 2018), nearly 151 million children aged under five were too short for their age due to malnutrition in 2017, compared to 165 million in 2012. Globally, Africa and Asia accounted for 39 % and 55 % of all stunted children. The percentage of severe stunted growth and stunted growth in children aged 0-59 months in Indonesia in 2017 was 9.8% and 19.8%. This condition increased from the previous year where the percentage of children aged 0-59 months who experienced severe stunted growth by 8.57% and stunted growth by 18.97% (Ministry of Health, 2018). WHO suggests that there are 7.8 million children under five in Indonesia with stunted growth (Susilawaty, 2018). The highest rate of severe stunted growth and stunted growth percentage in 2017 was in East Nusa Tenggara Province, which were 18.0 %, and 22,30.% respectively (Ministry of Health, 2018). Based on the Ministry of Internal Affairs Instruction (no.440/ 1959/SJ) concerning interventions for integrated stunted growth reduction in 2018, Lenda Village, became one of the villages prioritized in the integrated stunted growth intervention in 2018 because it was the village with the highest incidence of stunted growth of the 10 priority villages found in Mangggrai regency, East Nusa Tenggara Province. Lenda Village is located in the work area of Wae Codi Health Center, Cibal Barat, with the incidence of stunted growth at the Health Center of Waecodi 20.32%. Based on data from the Lenda village health post in 2018, the incidence of stunted growth was 73 children.

The incidence of stunted growth in Lenda Village is still high compared to the national target. The Indonesian government has a target to reduce stunted growth to below 20% by 2024 (Noersativa, 2019). Stunted growth is still an important issue that must be addressed immediately. However there are no data on risk factors for stunted growth in Manggarai Regency, especially in Lenda Village. Therefore, we conducted research on the analysis of factors related to the incidence of stunted growth in Lenda Village. This study is different from other previous studies because in this study the researchers also explored information about the local culture associated with the incidence of stunted growth.

METHOD

The design of this study was a cross-sectional study. This study was conducted in Lenda Village in Manggarai Regency in October 2018-April 2019. The sample technique used was purposive sampling. The study sample was parents who had children aged 12-60 months and children aged 12-60 months old in Lenda

Village, Manggarai Regency based on inclusion criteria and totaling 82 respondents. Inclusion criteria: parents who have children aged 12-60 months in October 2018-April 2019; have the ability to read and write, and children aged 12-60 months in October 2018-April 2019. Exclusion criteria: unwilling to be a respondent, parents who did not include children aged 12-60 months during the study and had children aged 12-60 months who were experiencing life-threatening pain conditions suh as shortness of breath or seizures.

In this study, several instruments were used includ: microtoise and weight scales. Microtoise is used to measure the child's height, while the weight scale is used to measure the child's weight. Demographic data questionnaire about the names of parents and children (initials), age (children), gender, occupation, income/month, height, weight of the child's body and nutritional status. The birth history questionnaire contains birth weight, immunization history and whether or not exclusive breastfeeding. Measurement of the weight of the child's body aims to determine the nutritional status based on weight-for-height z-scores (WHZ) in children aged 12-60 months. Nutritional status is categorized into two parts, including acute malnutrition and normal weight. Acute malnutrition if WHZ < -2 SD and normal weight if -2 SD ≤ WHZ ≤ 2 SD (Saaka, 2014). Immunization status is measured in two categories: complete and incomplete. Complete immunization status is if children aged 12-60 months have received complete basic immunization including HB-0, BCG, Polio 1-4, DP-HB-Hib 1-3, IPV and measles. Immunization status is incomplete if children aged 12-60 months have not received one or more basic immunizations. The operational definition of exclusive breastfeeding is to give only breast milk to babies from birth to 6 months of age. Diarrhea history questionnaire containing history of diarrhea in the last 1 month. Diarrhea is measured in the number of times a child has had diarrhea in the past month (once, twice, three times, four times or more than five times). The knowledge questionnaire contains knowledge about the mother's intervention in the first thousand days of birth, including the health and nutrition of the mother and baby before, during pregnancy and after the mother gives birth. The level of the mother's knowledge is categorized into two categories, high and low. The level of maternal knowledge is categorized as high if the value is ≥ median and low if the value < median (median: 15).The validity of the knowledge questionnaire was tested using Pearson product moment. The results of the validity test for 20 question items are declared as valid where the value of r count > r table. Reliability test for questionnaire level of maternal knowledge obtained Cronbach Alpha value 0.956. Measurement of stunted growth variables based on HAZ / Height-for-age z-score. The stunted growth category if HAZ is <-2 SD includes short and very short children (Mushtaq et al., 2016).

Data analysis used a chi-square test to determine the relationship between risk factors (exclusive breastfeeding, diarrhea, immunization status and maternal knowledge about intervention in the first thousand days of birth including the health and nutrition of the mother and baby before, during pregnancy and after delivery) to the incidence of stunted growth in children aged 12-60 years. A binary logistic regression was used to assess the association between independent and dependent variables.

When conducting research, the researcher first asks for the consent of the respondent and explains the purpose of the study through informed consent. Researchers also must pay attention to research ethics such as beneficence (minimizing danger), respect for human dignity (respondents have the right to ask questions, reject information given and refuse to get involved in research.), justice (justice), anonymity (not including respondent's name), and confidentiality (maintain the confidentiality of information provided by respondents). This research has received an ethical approval from the ethics commission of STIKES Santu Paulus Ruteng (Registered number 009/SKIIIa/XI/d/UPPM-STIKES/2018).

RESULT

Table 1. Distribution frequency of characteristics of children aged 12-60 months in Lenda Village, Manggrai Regency in 2019 (n = 82)

Variable		n	%
Age (months)	12 to 23	17	20.7
	24 to 35	19	23.2
	36 to 47	17	20.7
	48 to 60	29	35.4
Gender	Male	45	54.9
	Female	37	45.1
Acute malnutrition (based on weight-for-height z-score/WHZ)	Acute malnutrition WHZ < -2 SD	27	32.9
	Normal weight (-2 SD ≤ WHZ ≤ 2 SD)	55	67.1
Exclusively breastfed	Yes	30	36.6
	No	52	63.4
Immunization status	Complete	33	40.2
	Incomplete	49	59.8
Diarrhea	Yes	67	81.7
	No	15	18.3
Mother's knowledge	High	18	22.0
	Low	64	78.0
Stunted growth (based on HAZ/Height – for-age z-score)	Stunted (HAZ < -2 SD)	58	70.7
	Normal growth (HAZ ≥ -2 SD)	24	29.3

Based on table 1, it is known that as many as 29 children (35.4%) were aged 48 to 60 months, 45 children (54.9%) was male, 55 children (67%) were normal weight, 52 children (63.4%) didn't exclusively breastfeed, 67 children (81.7%) experienced diarrhea in the last 1 month, mothers who had a low level of knowledge regarding the intervention of the first thousand days of birth were as many as 64 (78%), and 58 (70.4%) children experienced stunted growth.

Table 2. Risk factors for stunted growth in children aged 12-60 months in Lenda Village, Manggrai Regency based on bivariate analysis in 2019 (n = 82)

Variable		Nutritional status				OR	95 % CI	P value
		Stunted growth		Normal growth				
		n	%	n	%			
Exclusively breastfed	No	43	52.4	9	11	4.778	1.733-13.172	0.002
	Yes	15	18.3	15	18.3			
Immunization status	Incomplete	41	50	8	9.8	4.824	1.740-13.374	0.003
	Complete	17	20.7	16	19.5			
Diarrhea	Yes	53	64.6	14	17.1	7.571	2.225-25.761	0.000
	No	5	6.1	10	12.2			
Mother's knowledge	Low	51	62	13	22.0	6.165	1.999-19.016	0.002
	Hight	7	9	11	13.00			

Based on table 2, it is known that based on the results of the bivariate analysis the factors that are significantly related to the incidence of stunted growth are exclusive breastfeeding (OR = 4.778, CI = 1.733-13.172, p value 0.002), immunization status (OR = 4.824, CI =1.740-13.374, p value 0.003), diarrhea

(OR = 7.571, CI = 2.225-25.761, p value 0.000), knowledge (OR =6.165 , CI =1.999-19.016, p value 0.002).

Tabel 3. Multivariate analysis of stunted growth risk factors of children aged 12-60 months in Lenda Village, Manggarai Regency in 2019 (n=82)

Variable		B	S.E	Wald	df	P value	Exp (B)/AOR	95,0% C.I. for EXP(B)	
								Lower	Upper
Step 1[a]	Exclusively breastfed	1.647	.717	5.283	1	0.022	5.193	1.275	21.158
	Immunization status	-2.209	.750	8.677	1	0.003	.110	.025	.477
	Diarrhea	2.594	.905	8.209	1	0.004	13.386	2.270	78.949
	Mother's knowledge	-3.012	.905	11.090	1	0.001	.049	.008	.290
	constant	2.218	2.101	1.115	1	0.291	9.193		

Binary Logistic Regression

Note:AOR=Adjusted Odd Ratio; CI Confidence Interval

Table 3 shows the results of the multivariate analysis of stunted growth risk factors, which is carried out on four variables, namely exclusive breastfeeding, immunization status, diarrhea and mother's knowledge. A binary logistic regression analysis showed that the most dominant risk factor for stunted growth in children aged 12-60 months was diarrhea with the value AOR 13.386 (95% CI: 2.270-78.949).

DISCUSSION

Stunted growth is a condition where a person's height is not appropriate (i.e shorter) than the height of another person in general who is the same age and this term usually applies to children under the age of 5 years. Stunted growth is one of the factors that causes physical and cognitive developmental disorders (Pearson et al., 2018; Sandjojo, 2017). Some of the factors that can cause stunted growth include: malnutrition experienced by pregnant women and children under five, lack of maternal knowledge about health and nutrition before and during pregnancy and after giving birth, limited health services including services ante-natal care), post-natal care and quality early learning, inadequate access to immunization services, lack of access to nutritious food, poor access to clean water and sanitation (Sandjojo, 2017).The results showed that the factors that were significantly related to the incidence of stunted growth were exclusive breastfeeding (AOR = 5.193, 95 % CI= 1.275-21.158, p value 0.022), immunization status (AOR= 0.110, 95 % CI = 0.025-0.477, p value 0.003), diarrhea (AOR = 13.386, CI 95 % = 2.270-78.949, p value 0.004), knowledge (AOR = 0.049, 95 % CI = 0.008-0.290, p value 0.001).

Exclusive breastfeeding is the ideal food to meet the nutritional needs of babies in order to increase growth and development during the first 6 months of life. Giving breast milk is to be continued until the 2-year-old baby is equipped with supplementary feeding. Colostrum contained in breast milk in the 2-4 days after the baby is born contains proteins that can improve the development of immune system function (WHO, 2016). Breast milk contains saturated and unsaturated fat, which is important for brain development and neural networks. Breast milk also contains vitamins and minerals that are easily digested. Over a long period of time, breast milk can be beneficial in preventing babies from the risk of malnutrition including stunted growth, becoming over or underweight, micronutrient deficiencies and heart disease compared to formula milk (Scherbaum, 2016; Unity, 2018). According to (Stuebe, 2009), infants who receive formula milk have a higher risk of infection compared to babies who receive exclusive breastfeeding in the first year of life. This is because specific immune

factors contained in the content of breast milk helps to protect babies against pathogens that can cause disease. In addition, infants who receive formula milk or a mixture of formula milk and breast milk have a 2.8 times greater chance (95% CI, 2.4-3.1) of experiencing gastroenteritis and diarrhea compared to babies who are exclusively breastfed (Chien, P F., Howie, 2001). The results of this study are in line with the research conducted by (Lestari, Hasanah, & Nugroho, 2018) which shows that there is a significant relationship between stunted growth and children who do not receive exclusive breastfeeding (p value 0.010). The provision of exclusive breastfeeding can reduce the prevalence of children with stunted growth. The research of (Ni'mah, Khoirun., Nadhiroh, 2015) also showed that children under five who were not exclusively breastfed mostly experienced stunted growth (88.2%) compared to toddlers who received exclusive breastfeeding. Toddlers who do not receive exclusive breastfeeding and finish complementary breastfeeding too early increase their risk of experiencing stunted growth early in life. Children who do not get breast milk less than 2 years have a 5.32-fold risk of stunted growth compared to children who are breastfed up to the age of 2 years or more (Dewana, Fikadu, Facha, & Mekonnen, 2017). In the study (Rusmil, Prahastuti, & Luftimas, 2019) showed that 71.4 % of children aged 6-9 months experienced stunted growth. If categorized as severely stunted and stunted, more children with severely stunted growth who were not given exclusive breastfeeding compared to exclusive breastfeeding. Rusmil et al.(2019) state that stunted growth occurs due to recurrent infection.

One of the factors that influences the incidence of stunted growth is exclusive breastfeeding. Children who do not receive exclusive breastfeeding have a weak immune system therefore they will easily experience infectious diseases, one of which is gastroenteritis and the other, diarrhea. Infants who were exclusively breastfed until 4 months of age have a lower risk of infection in the gastrointestinal tractus compared to infants who had never been breastfed with aOR: 0.41 [CI: 0.26-0.64] (Duijts & Hofman, 2010). Gastrointestinal disorders such as gastroenteritis and diarrhea cause children to experience nutritional deficiencies due to loss of appetite, nausea, vomiting and malabsorption. Malnutrition that occurs in the first thousand days of life or, what is often referred to as, the golden period can cause disruption of growth and development in infants, one of which is stunted growth. Based on the results of the study, most toddlers in the village of Lenda (81.7%) had experienced diarrhea. Diarrhea occurs amongst them due to having weak immune systems against pathogens that enter the body.

The results of interviews with several mothers in the village of Lenda found that there were several reasons that mothers did not provide exclusive breastfeeding, including cultural factors, knowledge of exclusive breastfeeding, family support and health workers. Cultural factors play an important role in influencing mothers in the village of Lenda to provide exclusive breastfeeding. Mothers in Lenda Village who have babies believe that the habits of their parents in caring for babies are the best way to care for babies, including providing additional food to babies other than breast milk before the age of 6 months. Some mothers say their babies have to be given water before the age of 6 months so that the baby grows into a strong child, some even have been given additional food before the age of 6 months.This practice leaves infants at high risk of infection, stunted growth and death as reported by other studies (Bukusuba, Kaaya, & Atukwase, 2018). Knowledge factors also contribute to exclusive breastfeeding. Based on the results of interviews, most respondents did not know about exclusive breastfeeding, the benefits of exclusive breastfeeding and the right time to provide complementary breastfeeding. Health workers also have an important role in providing motivation to mothers in the village of Lenda to provide exclusive breastfeeding. Several factors led to the lack of participation of health workers in providing motivation to mothers in the village of Lenda to provide exclusive

breastfeeding, among others, the lack of participation of mothers in participating in posyandu activities, the distance of health services to remote residents' homes.

The results showed that there was a significant relationship between immunization status and the incidence of stunted growth in children aged 12-60 months in Lenda Village. Immunization is a process of inducing immunity to fight infectious diseases usually by administering vaccines. Vaccines stimulate the immune system to protect individuals from further infections or diseases. Providing immunization to children has an important goal, which is to prevent and control a large number of infectious diseases and chronic diseases in children caused by infectious agents. Extensive coverage of immunization is very important to achieve sustainable development goals (SDGs). Vaccinations not only prevent increased morbidity and mortality in children due to infectious diseases such as diarrhea, measles, pneumonia, polio, and whooping cough, but they also help improve national priorities such as education and economic development (WHO, 2018).

The results of this study are in line with the research conducted by (Aguayo, Nair, Badgaiyan, & Krishna, 2016) which shows that as many as 35.9% of children aged 12-23 months who did not get complete basic immunization and experienced stunted growth with a p value of 0,000. Research conducted by (Mazengia, Amare Lisanu; Biks, 2018) shows that there is a significant relationship between incomplete immunization statuses and stunted growth with p value < 0.0001. According to Mazengia et al. (2018), the relationship between immunization statuses is incomplete and stunted growth is an indirect relationship. Children with incomplete immunization status tend to contract the disease, so they are at risk of stunted growth. The results of this study are not in line with the research conducted by (Manggala et al., 2018) which shows that there is no significant relationship between incomplete immunization status and the incidence of stunted growth with p value 0.413.

Vaccinations can prevent infectious diseases and also encourage child growth. However, only a few studies have examined the effect of vaccines on children's growth. Studies from several developing countries show that children who receive immunizations have a lower prevalence of stunted growth compared to children who do not receive immunizations (Anekwe & Kumar, 2012). Immunization status in children is one indicator of contact with health services. Incomplete immunization status of children shows a lack of child and mother contact with health services. This has an impact on children making them more susceptible to infections. It also results in a lack of monitoring of child development. Contact with health services will help improve nutritional problems and child development including stunted growth and immunization status is also expected to have a positive effect on long-term nutritional status (Anisa, 2012). Based on the results of interviews with one of the officers in the Lenda sub-district, most people in the Lenda village were less active in participating in the posyandu activities. This is due to inadequate geographical and transportation conditions which therefore hampers access to health services. This has an impact on most toddlers, resulting in incomplete immunization status and experiencing stunted growth.

The results showed that there was a significant relationship between diarrhea and stunted growth. Viral diarrhea is the main cause of gastroenteritis in infants in developing countries.The most common gastrointestinal viruses are rotavirus and adenovirus, while the most common bacteria are campylobacter jejuni, Sallmonela, Giardia lamblia, Clostridium difficile, Escherichia coli (Pillitteri, 2010; Williams, 2011). In infants 40% of the cases of diarrhea are attributed to rotavirus globally. Acute diarrhea is usually associated with infection while chronic diarrhea is associated with malabsorption or inflammation. Diarrhea that occurs in infants has a very serious impact because babies can easily experience rapid fluid loss. Some factors that can cause diarrhea include low socioeconomic status, parental

education, malnutrition, poor hygiene and inappropriate complementary feeding, which is also associated with gastroenteritis. Breastfeeding is thought to be a protective factor against gastrointestinal infections (Mushtaq et al., 2016).

The results of this study are in line with the research conducted by (Ilma, Salimo, & Pamungkasari, 2019) which shows that recurrent diarrhea events affect the risk of stunted growth b = 2.55%; 95% CI = 1.01-4.09; p = 0.001). The many risk factors for diarrhea in children include good hygiene practices from the mother, the provision of additional food and sanitation. Mothers who have good hygiene practices will reduce the risk of recurrent diarrhea in children (b = -1.83 95% CI = -2.65 to -1.01; p < 0.001). A good supply of additional food will reduce the risk of recurrent diarrhea in children (b = -0.89; 95% CI = -1.68 to -0.09; p = 0.028). Families who have good basic sanitation will reduce the risk of recurrent diarrhea in children (b = -1.73; 95% CI = -2.57 to -0.88; p < 0.001) (Ilma et al., 2019).

Diarrhea can cause malnutrition in children which results in failure of progressive growth (stunted growth). Diarrhea causes loss of nutrients that are important for the growth and development of children. Repeated diarrhea episodes are associated with chronic malnutrition, stunted growth and death (Budge, Parker, Hutchings, & Garbutt, 2019). Several factors contribute to the adverse effects of diarrhea on children's nutritional status including the reduced nutrient intake (due to nausea, vomiting and anorexia), maldigestion, malabsorption, increased loss of nutrients, and the effects of the inflammatory response. Infection in children, especially diarrhea, is often associated with reduced food intake. A study from Guatemala found that diarrhea was associated with a reduction in children's daily food intake by 160 calories, and 3 g of protein in children aged 12-60 months. Acute diarrhea also causes fluid loss, and the electrons are accompanied by loss of nutrients, maldigestion, malabsorption. Children with diarrhea experience significant malabsorption of carbohydrates, proteins and fats. High stool volume loss when diarrhea is (more than 30 ml/kg/day) relates to the negative balance of absorption of protein and fat carbohydrates. The inflammatory process that accompanies enteric infection also contributes to the increased process of nutrient loss (Nel, 2010).

Based on observations from researchers, several factors contributed to the high incidence of diarrhea that caused stunted growth in children aged 12-60 months in the village of Lenda. These factors include: lack of exclusive breastfeeding and breastfeeding until the age of 2 years and poor sanitation. Based on the results of the study, most mothers in Lenda Village did not provide exclusive breastfeeding. Breast milk can improve the immune system, which protects children from infection. Poor sanitation also plays a role in increasing the incidence of diarrhea in children in the village of Lenda. Based on the results of interviews, researchers with officers in the village of Lenda found that most people in the village of Lenda did not have latrines and access to clean water. The unavailability of access to clean water has caused the Lenda Villages to have poor hygiene and sanitation. Poor water, sanitation and hygiene conditions are more clearly recognized as contributing to child stunting (Budge et al., 2019). Children under 2 years of age living in a household with poor environmental sanitation had a 4.60-fold higher risk of stunted growth compared to those who lived in a household with good environmental sanitation (Rahman, Napirah, & Nadila, 2017).

Stunted growth handlers are carried out through specific interventions and sensitive interventions on the first 1000 days of life of a child until of 6 years of age. Parents, especially mothers, must have knowledge of specific interventions for the first 1000 days of life for a child up to 6 years of age. Based on the results of the study, there is a significant relationship between the level of knowledge of mothers and the incidence of stunted growth. Knowledge that must be possessed by mothers regarding specific interventions includes nutrition during

pregnancy to overcome chronic energy and protein deficiencies, initiation of early breastfeeding, exclusive breastfeeding, breastfeeding up to the age of 23 months accompanied by breastfeeding supplementation, prevention and treatment of diarrhea in children, immunizations, administration of worm medicine and zinc supplements. In addition to knowledge about specific interventions, mothers must also be knowledgeable about sensitive interventions such as access to clean water, good sanitation and access to health and family planning services (Sandjojo, 2017) . Mothers who have a high level of knowledge are expected to have the motivation and ability to intervene in the first 1000 days of life of a child until the age of 6 so that it can prevent the occurrence of stunted growth in children.

The results of this study are in line with the research conducted by (Mardani, Raden A Dedy; Wetasin, 2015) which shows that maternal knowledge about malnutrition has a significant relationship with the incidence of stunted growth in children under 5 years of age with p value < 0.001. Knowledge of mothers regarding malnutrition in children positively affects the occurrence of stunted growth in children under the age of 5 years. Mothers who have insufficient knowledge of malnutrition are more likely to have children with malnutrition than mothers who have adequate knowledge of child malnutrition. The study conducted by (Hall et al., 2018) shows that the term stunted growth was generally not known by participants. Participants who had reported having heard of, read about, or knew something about stunted growth were only 1,2 %. Improving mothers' behavioral beliefs, behaviors, and education are key to addressing stunted growth. Improved maternal education, especially, has consistently been associated with reductions in child stunting (Hall et al., 2018).

Parents, especially mothers, have an important role in the process of child development. Mothers must have extensive knowledge about the process of growth and development of children to prevent stunted growth. In this study, researchers examined the level of knowledge of mothers in the first thousand days of birth including a balanced diet during pregnancy, folic acid, iron and calcium during pregnancy, the impact of nutrient deficiencies during pregnancy, exclusive breastfeeding, the benefits of colostrum, breastfeeding and diarrhea treatment. The results showed that as many as 60 mothers (73.2%) did not know about the importance of iron consumption during pregnancy, 47 mothers (57.3%) did not know about exclusive breastfeeding, 68 mothers (82.9%) did not know the benefits of colostrum, 43 mothers (52.4%) argued that babies may be given water and additional food before the age of 6 months, and 43 mothers (52.4%) did not know about the handling of diarrhea. A mother who lacks knowledge about intervention for the first 1.000 days of birth tends to have a child who is stunted. This is supported by the results of research in which mothers have insufficient knowledge regarding factors that can affect stunted growth events such as balanced nutrition during pregnancy, exclusive breastfeeding and treatment of diarrhea. The low knowledge possessed by mothers has an impact on maternal parenting that affects the failure of growth and development of children.

The low level of knowledge possessed by mothers in the village of Lenda regarding the intervention of the first 1.000 days of birth was influenced by a lack of access to health services. Based on the results of interviews with health workers in the village of Lenda, most of the women in the village of Lenda who have children under five are less active in participating in activities in Puksemas and at the Posyandu. This is due to inadequate transportation access and the health service being far from people's homes. Poor access to health services causes a lack of information.

CONCLUSION AND RECOMMENDA TIONS

The results showed that the factors that were significantly related to the incidence of stunted growth in children aged 12-60 months in Lenda Village, Manggarai Regency, NTT were exclusive

breastfeeding, immunization status, diarrhea and maternal knowledge in the first thousand days of intervention in birth. Children who do not get exclusive breastfeeding are more at risk of stunted growth compared to children who get exclusive breastfeeding. Children under five who experience recurrent diarrhea are more at risk of stunted growth compared to children under five who do not experience diarrhea. Children under five who do not get complete basic immunizations have a greater risk of stunted growth compared with children under five who get complete basic immunization. Parents must have extensive knowledge about the first thousand days of intervention to prevent the occurrence of stunted growth in children. Integrated stunted growth planning is very much needed through cross-sectoral collaboration to increase coverage of health services, improve sanitation to prevent diarrhea and increase maternal knowledge and health during antenatal and postnatal care through intervention in the first thousand days of birth to 6-year-old children. Recommendations for further research are a study of the role of a cross-sectoral intervention in reducing the incidence of stunted growth with a cultural approach including both quantitative and qualitative research. Recommendation for Lenda Village government officials is the use of village funds for the provision of clean water facilities, hygienic latrines, and provision of supplementary food for children under 5 years of age who have been stunted. In addition, working with the health center to increase the coverage of the service and increase public knowledge about stunted growth with a local cultural approach.

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