

Factors Associated with Incidence of Stunting in Toddlers at Loang Health Center Lembata Regency

Oktaviana Belutowe¹⁾, Serlie K.A. Littik²⁾, Indriati A. Tedju Hinga³⁾

^{1,2,3)} Public Health Science Program, Public Health Faculty, Nusa Cendana University;
vianabelutowe25@gmail.com_serlie.littik@staf.undana.ac.id_indriati.teddjuhinga@staf.undana.ac.id

ABSTRACT

Stunting is a form of chronic malnutrition which is characterized by an indicator of height according to age. The prevalence of stunting under five in Indonesia reaches 36.4% and the province of NTT is at the top. This study aims to determine the factors associated with the incidence of stunting in toddlers in the Loang Health Center, Lembata Regency. The type of research used is observational analytic research with a cross sectional study design. The population are toddler who registered in Loang Health Center. The sample in this study was 89 toddlers who were taken by means of simple random sampling technique. The data analysis used chi square statistical test. The results of this study indicate that the factors associated with the incidence of stunting are the level of energy adequacy (95% CI=5,130-41,692; $p=0,000$), the level of protein adequacy (95% CI=7,668-74,193; $p=0,000$), feeding practices (95% CI=1,212-7,117; $p=0,028$), while the factors that are not related to the incidence of stunting are a history of disease. infection ($p=0,342$), practice of environmental hygiene and sanitation ($p=0,161$), care for sick children ($p=0,845$). It is hoped that health workers can provide counseling about balanced nutrition to prevent stunting from an early age in mothers of toddlers so that the information obtained during counseling can be remembered and practiced properly.

Keywords: *stunting; toddlers; nutritional adequate.*

ABSTRAK

Stunting merupakan salah satu bentuk gizi kurang yang bersifat kronik yang ditandai dengan indikator tinggi badan menurut umur. Prevalensi balita stunting di Indonesia mencapai 36,4% dan provinsi NTT berada pada urutan teratas. Penelitian ini bertujuan untuk mengetahui faktor yang berhubungan dengan kejadian stunting pada balita di Wilayah Kerja Puskesmas Loang, Kecamatan Nagawutun, Kabupaten Lembata. Jenis penelitian analitik observasional dengan rancangan penelitian cross sectional study. Populasi ialah balita yang tercatat di Puskesmas Loang. Besar sampel sebanyak 89 balita dengan teknik simple random sampling untuk pengambilan sampel. Analisis data univariat dan bivariat dengan uji statistik chi square untuk menilai hubungan. Hasil penelitian ini menunjukkan bahwa faktor yang berhubungan dengan kejadian stunting adalah tingkat kecukupan energi (95% CI=5,130-41,692; $p=0,000$), tingkat kecukupan protein (95% CI=7,668-74,193; $p=0,000$), praktek pemberian makan (95% CI=1,212-7,117; $p=0,028$), sedangkan faktor yang tidak berhubungan dengan kejadian stunting adalah riwayat penyakit infeksi ($p=0,342$), praktek kebersihan dan sanitasi lingkungan ($p=0,161$), perawatan anak dalam keadaan sakit ($p=0,845$). Diharapkan agar petugas kesehatan dapat memberikan penyuluhan tentang gizi seimbang untuk mencegah stunting sejak dini pada ibu balita sehingga informasi yang didapat saat penyuluhan dapat diingat dan dipraktikkan dengan baik.

Kata Kunci: *stunting; balita; kecukupan gizi*

INTRODUCTION

Stunting is a nutritional problem in toddlers caused by chronic malnutrition due to lack of nutritional intake for a long time, so that the height is shorter than the standard height for his age.⁽¹⁾ Stunting experienced by toddlers requires special attention because it can inhibit the growth and development of children in terms of physical and mental. Stunting can lead to an increased risk of illness and death as well as impaired motor and mental abilities. Toddlers who are stunted have a risk of decreased intelligence, productivity, and an increased risk of obesity and other diseases later in life.⁽²⁾ Data on the prevalence of stunting according to the World Health Organization (WHO) in 2018 states

that Indonesia is in the third highest position in Southeast Asia. /South-East Asian Region (SEAR) after Timor Leste (50.5%) and India (38.4%) is 36.4%.⁽³⁾

The stunting prevalence rate in East Nusa Tenggara is the highest at 42.7%.⁽⁴⁾ The Health Profile of East Nusa Tenggara in 2019 states that the highest stunting rate is in South Central Timor (TTS) Regency (48.1%) and the lowest is in Ngada Regency (15.6%), while the stunting rate in Lembata Regency is in eighth place (31.3%) out of the existing 22 regencies. The number of children with stunting in Lembata Regency is quite high and cases are increasing.⁽⁵⁾ The health center that has the highest number of stunting in Lembata Regency in 2020 is the Loang Health Center. Loang Health Center is the only health center located in Nagawutun District, Lembata Regency with 287 stunted toddlers with a percentage of 41.5%. This study generally aims to determine the factors associated with the incidence of stunting in toddlers in the Loang Health Center Work Area, Nagawutun District, Lembata Regency. The specific objective is to analyze the relationship between food intake, history of infectious diseases, and child care patterns with the incidence of stunting in toddlers in the Loang Health Center Work Area, Nagawutun District, Lembata Regency.

METHOD

The kind of research used is an analytic observational study with a cross sectional research design which was carried out in the working area of the Loang Health Center, Nagawutun District, Lembata District from July-September 2021. The population in this research were all children under five who were recorded in the working area of the Loang Health Center, namely 799 toddlers. The sample in this study was taken using a simple random sampling technique, as much as 89 samples. The bivariate analysis used the chi-squared test to examine the correlation between the independent variables and the dependent variable, namely the energy and protein adequacy level, the history of infectious diseases, and parenting with the incidence of stunting in the Loang Health Center Work Area in 2021. Data collection instruments used interview techniques with questionnaire. Data processing in the study was analyzed using the SPSS. The data that has been processed is then interpreted and then presented in the form of narratives and tables. This research has passed the research ethical feasibility test with the ethical approval number 2021078 – KEPK.

RESULTS AND DISCUSSION

The results of this research are classified into characteristics of respondents and bivariate analysis. The results of the two analyzes can be seen in the following table

Table 1. Characteristics of respondents based on the energy and protein adequacy level, the history of infectious diseases and parenting on the incidence of stunting in the Loang Health Center

Variable	n	%
Nutritional Status		
<i>Stunting</i>	55	61.8
<i>Not Stunting</i>	34	38.2
Energy and Protein Adequacy Level		
1. Energy Adequacy Level		
Lack	53	59.6
Good	36	40.4
2. Protein Adequacy Level		
Lack	52	58.4
Good	37	41.6
History of Infectious Diseases		
Lack	54	60.7
Good	35	39.4
Parenting		
1. Feeding Practice		
Poor	51	57.3
Good	38	42.7
2. Hygiene and Sanitation Practices		
Poor	30	33.7
Good	59	66.6
3. Care for Sick Children		
Poor	29	32.6
Good	60	67.4

Table 1 shows that the number of toddlers who suffer from stunting is higher than those who do not suffer from stunting, with lack of adequate levels of energy and protein as well as feeding practice. Nevertheless, toddlers have good hygiene and care practices.

Table 2. The relationship among energy and protein adequacy level, history of infectious diseases, parenting and the incidence of stunting in the Loang Health Center

Variable	<i>Stunting</i>		<i>Not Stunting</i>		<i>p-value</i> (95% CI)
	n	%	n	%	
Energy and Protein Adequacy Level					
1. Energy Adequacy Level					
Lack	45	84.9	8	15.1	0.000
Good	10	27.8	26	72.2	(5.130-41.692)
2. Protein Adequacy Level					
Lack	46	88.5	6	11.5	0.000
Good	9	24.3	28	75.7	(7.668-74.193)
History of Infectious Diseases					
Lack	19	54.3	16	45.7	0.342
Good	36	66.7	18	33.3	
Parenting					
1. Feeding Practice					
Poor	37	72.5	14	27.5	0.028

Good	18	47.4	20	52.6	(1.212-7.117)
2. Hygiene and Sanitation Practices					
Poor	15	50.0	15	50.0	0.161
Good	40	67.8	19	32.2	
3. Care for Sick Children					
Poor	17	58.6	12	41.4	0.845
Good	38	63.3	22	36.2	

Table 2 shows that the results of the chi-square analysis found three variables that have a relationship with the incidence of stunting, namely the level of energy adequacy, the level of protein adequacy, and feeding practices. While the variables that have no relation to the incidence of stunting are a history of infectious diseases, sanitation hygiene practices, and care for sick children.

1. Relationship among Energy Adequacy Level, Protein Adequacy Level and the Incidence of Stunting

a. Relationship between Energy Adequacy Level and the Incidence of Stunting

The level of energy adequacy is a risk factor for stunting in toddlers. The amount of energy intake will greatly affect the rate of cell division and the formation of the structure of the body's organs. In the early growth period, cells will do rapid division. Excess or lack of energy intake in children will be reflected in their growth. If the lack of energy is severe and lasts for a long time, the children's growth speed will decrease or even stop their growth. If the growth rate is reduced or even stopped, it will affect the children's height which will cause stunting.⁽⁶⁾

The results showed that there is a correlation between the energy adequacy level and the incidence of stunting, in toddlers in the Loang Health Center. The results of this research are analogous with the results of research organized by Maulidah, Rohmawati, and Sulistiyani (2018) which show that there is a significant correlation between the level of energy intake and the incidence of stunting in toddlers.⁽⁷⁾ Low levels of energy intake will affect the function and structure of brain development and can result in stunted growth and cognitive development. The growth and development of toddlers is greatly influenced by the food given to toddlers so that adequate and balanced food intake is totally needed. Children who lack energy intake have a greater chance of suffering from stunting than children who have good energy intake.

b. The Relationship between Protein Adequacy Level and the Incidence of Stunting

Protein in the body functions for growth, development and maintenance of the body, formation of essential body tissues, regulating water balance, forming antibodies and transporting nutrients. Protein can be harnessed as fuel if the adequacy of energy in the body is not met properly from carbohydrates and fats. Protein will be fulfilled if the energy adequacy has been met because no matter how much protein, it will still be converted into heat if the energy intake is still below the requirement. Lack of protein in children will affect growth. Chronic protein deficiency in children can cause children's growth to be stunted and not in accordance with their age. In worse conditions, it can result

in the cessation of the growth process. Increasing protein intake in toddlers is very necessary because toddlers are in a period of growth. Proteins form various structures of body organs such as bones, teeth, muscles in toddlers.⁽⁶⁾

The results found that there was a correlation between the protein adequacy level and the stunting incidence, in toddlers in the Loang Health Center. The results of this research are analogous with the results of research conducted by Maulidah, Rohmawati and Sulistiyani (2018) which show that there is a significant correlation between the level of protein intake and the incidence of stunting in toddlers.⁽⁷⁾ Toddlers are classified as a growth period so they need a sufficient amount of protein. The amount of protein needed by toddlers is more than that required by adults who have stopped growing. Toddlers who have inadequate protein intake for a long time can cause stunted growth in height. Short children who lack protein will grow more slowly than children who consume enough protein.

2. The Relationship between History of Infectious Diseases and the Incidence of Stunting

Infection can cause the destruction of body tissues, both for the germs themselves and destruction to obtain the proteins needed to maintain the body. The presence of infectious diseases in the body of children will get worse if accompanied by vomiting and diarrhea. This condition causes a decrease in immunity or a decrease in the body's resistance to attacks by various diseases.⁽⁸⁾

The results found that there is no correlation among the history of infectious diseases and the incidence of stunting in toddlers in the Loang Health Center. The results of this study are in line with the results of research conducted by Nashikah and Margawati (2012) in Picauly and Toy (2013) which state that the history of infectious diseases is not a risk factor for stunting, so it can be estimated that there is one case of infectious disease or not, it does not affect the chance of stunting.⁽⁹⁾ The results of research in the field showed that infectious diseases do not cause serious problems for children's growth and development if food intake was very good. Not to mention, if parents had enough knowledge about the infectious disease itself that can cause problems for the growth and development of children as well as the capacity to increase supervision of children.

3. The Relationship between Parenting and the Incidence of Stunting

a. The Relationship between Feeding Practice and the Incidence of Stunting

Feeding in the right way, providing nutritious food and adjusting meal portions will improve the nutritional status of children. Good food for toddlers must meet the requirements for adequate energy and nutrients, namely according to the age of the toddlers, a balanced menu pattern with available food ingredients, the children's eating habits and tastes, the shape and portion of the food that is adapted to the children's condition. The feeding practice include the frequency of feeding, the provision of interludes, food selection consideration, complete feeding, timing and method of feeding.

Poor feeding practice results in an imbalance of nutritional intake in children and cumulatively results in impaired child growth.⁽¹⁰⁾

The results found that there is no correlation among the history of infectious disease with the incidence of stunting in toddlers in the Loang Health Center. The results of this research are analogous with the results of research conducted by Bella, Fajar and Misnaniarti (2020) which shows that is a correlation among feeding practice and the incidence of stunting in toddlers aged 12-59 months.⁽¹¹⁾ The results of research in the field revealed that feeding practice is not good because mothers do not provide diverse types of food for toddlers. Most of the food given to children is not always consumed by the children and the mothers' habit of giving non-nutritious snacks to toddlers. Lack of variety in food causes toddlers to lack various types of nutrients that are needed by the body. If the nutrients the body needs are not met, it will interfere with the child's growth and development process. Food intake for toddlers becomes less both in terms of quality and quantity and can cause toddlers to be prone to stunting.

b. The relationship between Hygiene and Sanitation Practices and the Incidence of Stunting

Hygiene and sanitation practices are all efforts to control the human physical environment. Hygiene practice, which consists of personal hygiene and environmental hygiene play an important role for child development, lack of personal hygiene will end up with skin diseases, respiratory infections such as ARI (Acute Respiratory Infections) and disorders of the digestive tract such as diarrhea, intestinal worms, and others. Environmental hygiene is closely related to diseases of the respiratory tract, digestive tract, and diseases caused by mosquitoes.⁽¹⁰⁾

The results found that is no relation between the hygiene and sanitation practices with the incidence of stunting in toddlers in the Loang Health Center. The results of research in the field revealed that most parents are attentive to the personal hygiene of their toddlers both during activities at home and outside the home. If personal hygiene is applied properly to children, this will allow children to avoid microorganisms that cause disease.

c. The Relationship between Care for Sick Children and the Incidence of Stunting

The practice of care for sick children is one aspect of parenting that can affect the nutritional status of children. Health care practice is everything that is done to maintain the health status of children, keep and prevent children from various diseases that can cause a decline in the children's health status. The practice of health care includes the treatment of disease in children when they suffer from diseases and preventive measures against the diseases themselves so that the children will not get the diseases. Good health care practices for children can be achieved by paying attention to the nutritional status of children, completeness of immunizations, personal hygiene of children and the environment in which the children live, as well as the mothers' efforts to seek treatment for the sick children, the mothers take the children to the health services such as hospitals, clinics, health centers, and polindes (Village Maternity Home).⁽¹⁰⁾

The results found that is no relation between the care for sick children and the incidence of stunting in the Loang Health Center. The results of this research are analogous with the results of research conducted by Yudianti and Saeni (2016) which show that is no relationship among the care for sick children and the incidence of stunting in toddlers.⁽¹²⁾ The results of the research in the field revealed that most mothers are attentive to the health of their toddlers, which can be seen from the behavior of mothers who take their children to health services when their children are sick, accompany their children when they are sick and even buy medicine to treat their sick children. Health care practice includes the treatment and prevention of diseases so that children do not get diseases. Health workers and cadres also play a role in providing health information, inviting, and ready to help mothers whose toddlers are having issues. Mothers of toddlers also take their children to the nearest posyandu every month to monitor the development of their toddlers and get complete immunizations.

CONCLUSION

From the results of the research, it was concluded than the variables that had a relationship with the incidence of stunting in the Loang Health Center Work Area, Nagawutun Districk, Lembata Regency were energy adequacy levels, protein adequacy levels, and feeding practices. Meanwhile, a history of infectious deseases, sanitation hygiene practices, and sick child care were not related to stunting in the Loang Health Center Work Area, Nagawutun District, Lembata Regency.

Mother of toddlers are expected to be more active in seeking information about balanced nutrition and how to be prevent stunting from an early age in various available sources, so that they understand the importance of balanced nutrition food for the family as well as being able to cope with stunting from early age.

REFERENCE

1. Ministry of Health of the Republick of Indonesia. Nutritional Status Monitoring Pocket Book. Pocket Book [Internet]. 2017;1–150. Available on: <https://kesmas.kemkes.go.id/konten/105/0/012609-book-pocket-psg-2017>
2. Rilyani, Trismiyana E. Factors Associated with Stunting Incidence in Toddlers at Panjang Health Center Bandar Lampung in 2016 J Kesehat Holistik [Internet]. 2016;10(3):105–14. Available on: <http://ejournalmalahayati.ac.id/index.php/holistik/article/view/243/pdf>
3. Ministry of Health RI Data dan Information. Stunting Newsletter. Buletin Stunting. (The Situation of Stunting Toddlers in Indonesia). Ministry of Health RI. 2018;301(5):1163–78.
4. Ministry of Health of the Republick of Indonesia. Main Result of Riskesdas 2018. Ministry of Health RI [Internet]. 2018;53(9):1689–99. Available on: https://kesmas.kemkes.go.id/assets/upload/dir_519d41d8cd98f00/files/Results-riskesdas-2018_1274.pdf

5. NTT Health Office. Health Profile of East Nusa Tenggara Province (Ntt get up ntt prosperous). Health Profile of East Nusa Tenggara Province [Internet]. 2018; Available on: dinkes.nttprov.go.id
6. Samosir N. The Relationship between Nutrient Intake (Energy, Protein, and Zinc) with Stunting in Children Aged 2-5 Years in Tanjung Kamal Village, Mangaran Health Center work Area, Sitobondo Regency. 2017.
7. Maulidah WB, Rohmawati N, Sulistiyani S. Factors Related to the Incidence of Stunting in Toddlers in Paduman Village, Jelbuk Districk, Jember Regency. *J Ilmu Gizi Indonesian* [Internet]. 2019;2(2):89. Available on: <http://ilgi.respati.ac.id/index.php/ilgi2017/article/download/87/36>
8. Putra Onetusfisi. The Effect of BBLR on Stunting Incidence in Children Aged 12-60 Months in the Work Area of Pauh Health Center in 2015. *Skripsi of Faculty of Public Health Andalas University*. 2016;2(2):129.
9. Picauly I, Toy SM. Analysis of Determinan and the Effect of Stunting on Learning Achievement of School Children in Kupang and East Sumba, NTT. *J Gizi dan Pangan* [Internet]. 2013;8(1):55. Available on: <https://journal.ipb.ac.id/index.php/jgizipangan/article/view/7254/5665>
10. Sasmi DJ. Overview of Parenting Patterns and Nutritional Status of Toddlers in Smoking Families in Berastagi District. *Skripsi of Faculty of Public Health, University of North Sumatera* [Internet]. 2014; Available on: <https://text-id.123dok.com/document/wq27xey1-gambaran-pola-asuh-dan-status-gizi-balita-pada-keluarga-perokok-di-kecamatan-berastagi-tahun-2014.html>
11. Bella FD, Fajar NA, Misnaniarti M. The Relationship Between Parenting Patterns and the Incidence of Stunting in Children Under Five from Poor Families in the City of Palembang. *J Gizi Indonesia* [Internet]. 2020;8(1):31. Available on: <https://ejournal.undip.ac.id/index.php/jgi/article/view/24146>
12. Yudianti, Saeni RH. Parenting with Stunting Incidents in Toddlers in Polewali Mandar. *J Gizi Poltekkes Kemenkes Mamuju* [Internet]. 2017;2(1):21. Available on: <https://jurnal.poltekkesmamuju.ac.id/index.php/m/article/view/9/8>