ISSN 2597– 6052

DOI: https://doi.org/10.56338/mppki.v7i8.5925

MPPKI

Media Publikasi Promosi Kesehatan Indonesia

The Indonesian Journal of Health Promotion

Research Articles ***Open Access***

Analysis of Factors Affecting the Incidence of Stunting in Children 24-59 Months in 2023

Rosdiana[1*] Marhtyni[2], Baktiana Ratna Etnis[3]

[1]Faculty of Publich Health University Indonesia Timur

[2]Faculty Of Publich Health Univresity Indonesia Timur

[3]Faculty Of Public Health College of Health Sciences Papua

Author Correspondence: rosdiana_lia83@yahoo.com

Abstract

Introduction: Stunting is a chronic condition where the body becomes very short for the age it should be measured based on Body Length according to age (PB/U) or Height according to age (TB/U) with values on anthropometric tables <-2SD according to international references.

Objective: This study aims to analyse the factors that influence the incidence of stunting in toddlers.

Method: This research is observational using a Cross-Sectional Study design. A total of 87 samples were taken through Simple Random Sampling. Data collection was done through observation, interviews, and documentation. Data were analysed with the SPSS program, statistical tests using Chis- Square for bivariate tests, and logistic regression tests for multivariate tests with p < 5%.

Results: showed that the environmental sanitation variable X2 hit value 13.104 > from 3.841 and p value 0.000 < 0.05, LBW X2 hit value 14.303 > from 3.841 and p value 0.000 < 0.05, Immunisation X2 hit value 4.44 > from 3.841 and p value 0.03 < 0.05 and History of infectious disease X2 hit value 21.60 > from 3.841 and p value 0, 000 < 0.05 this means that all variables affect the incidence of stunting in toddlers but the most influential based on multivariate analysis of the variable history of infectious disease significant value > 0.05 (variable p < 0.05) but the smallest is the history of infectious disease with a p value of 0.00. **Conclution:** Maximising programs to minimise the occurrence of stunting such as immunisation in accordance with national standards and health promotion related to the prevention of infectious diseases in children needs to be improved to overcome the problem of stunting toddlers.

Keywords: Stunting; Environmental; Sanitation; BBLR; Immunisation and History of Infectious Disease

BACKGROUND

The problem of stunting describes a chronic nutritional problem that is influenced by the mother or mother-to-be, the fetal period, and the infant/toddler period as well as other problems that indirectly affect health (Ministry of Health, 2016). Stunting is a nutritional problem that is increasingly found in developing countries, including Indonesia. Stunting is a short and very short body condition that exceeds a deficit of -2 SD below the median length or height (3).

During this period, toddlers need adequate nutritional intake with good quality(4) If nutrients are not fulfilled, the physical and intellectual growth of toddlers is impaired. Growth in the early years of life is characterised by gradual increases in both linear growth acceleration and rate of weight gain. Linear growth that is not age-appropriate reflects malnutrition (5).

Stunting will lead to increased mortality, morbidity and in child development will result in decreased cognitive motor and language development (6). While the long-term effects in the health sector are in the form of short stature, decreased reproduction and increased risk of obesity and degenerative diseases in the future. This is because children with stunting tend to be more susceptible to becoming obese, because people with short stature will also have a low ideal body weight (7). Factors that cause the high incidence of stunting in toddlers include direct factors, namely nutritional intake. Adequate nutritional intake is necessary for the growth and development of toddlers. This critical period is a time when toddlers experience growth and development. Toddlers who have experienced malnutrition before can still be improved with good intake so that they can grow accordingly. But if the intervention is done late, the toddler will experience growth failure (8). According to research conducted (9) energy intake shows a significant relationship to the incidence of stunting. In addition, research on toddlers in Kalibiru Village in 2012 showed that there was a tendency for toddlers with low protein intake to become stunted higher than toddlers with adequate protein intake (10)

The second direct factor affecting stunting is a history of infectious disease Infectious diseases and fulfilment of nutritional intake are two things that are interrelated (11). Someone with an infectious disease will be worse off if there is a lack of nutritional intake. Children under five with malnutrition will be more susceptible to infectious diseases. Research on the relationship between infectious diseases and stunting states that diarrhoea is one example of a risk factor for stunting in children under five years of age (12).

In addition to these direct factors, there are also indirect factors that cause stunting, namely sanitation factors and the availability of clean water. Low sanitation and environmental hygiene can trigger digestive disorders that can make energy for growth diverted to the body's resistance to infection. Continuous exposure to human and animal faeces can lead to chronic bacterial infections. Infections are caused by poor sanitation and hygiene practices, such as lack of clean water (13). One study suggested that access to clean water is one of the things that can be associated with the incidence of stunting (14)

The second indirect factor is immunization (15) Immunisation is a process that makes a person able to fight against infectious diseases. Immunisation is usually in the form of a vaccine. When the body is given a vaccine or immunisation the body will be exposed to a virus that has been weakened or killed in a small and safe amount. Then the immune system will remember the virus or bacteria when it attacks the body in the future (16). A study showed that incomplete immunisation status had a significant association in the incidence of stunting in children aged <5 years (15).

METHODE

The type of research explains the proposed research including the type or method used (17), this type of research is observational analytic to find out the causal relationship between two variables observationally. this is to analyse the effect of LBW history of infectious diseases, environmental sanitation and immunisation status on the incidence of stunting. This study is a quantitative study, with a cross-sectional approach. This study used simple random sampling. Analysis of calculations in this study using path analysis.

RESULT

Analysis was conducted to obtain a descriptive picture of each variable studied. The level of distribution of the results of this study is intended to see the extent of the frequency distribution of all research variables based on the characteristics of age groups, education, occupation, environmental sanitation, LBW, Immunisation Status, history of infectious diseases and stunting. The results of data analysis can be seen in the following table:

Table 1. Distribution of Age Groups of Respondents on the Incidence of Stunting in Toddlers in the Moanemani Health Centre Working Area, Regency Dogiyai Central Papua Year 2023

Years old	n	Persentase %
22-25	26	29,9
26-29	49	56,3
30-34	5	5,7
35-38	4	4,6
39-42	3	3,4
Total	87	100,0

Source : Data Primer,2023

Table 1. Shows that out of 87 respondents, the highest age group was 26-29 years old as many as 49 (56.3%) and the lowest age group was 39-42 years old as many as 3 (3.4%)

Table 2. Distribution of stunting incidence among toddlers in the Moanemani Health Centre working area, Dogiyai Regency Central Papua in 2023

Incindent Stunting	n	Persentase %
Normal	64	73,6
Stunting	23	26,4
Total	87	100,0

Source : Data Primer,2023

Table 2. shows that out of 87 toddlers there are normal status as many as 64 (73.6%) and stunting 23 (26.4%). Bivariate analysis is intended to determine the relationship between the independent variable and the dependent variable.

Table 3. Influence of Environmental Sanitation on the Incidence of Stunting in Toddlers in the Moanemani Health Centre Working Area, Dogiyai Regency Central Papua in 2023

Enviroment Stunting	Stunting				Total	X^2	p
	Normal		Stunting				
	n	%	n	%			
Good	53	84,1	10	15,9	63	13,104	0,000
Poor	11	45,8	13	54,2	24		
Total	64	73,6	23	26,4	87		

Source: Data Primer, 2023

Table 3 shows that of the 63 samples with good environmental sanitation, 53 (84.1%) were normal and 10 (15.9%) were stunted, while of the 24 samples with poor latrine ownership, 11 (45.8%) were normal and 13 (54.2%) were stunted. The chi square test results obtained an X2 hit value of 13.104 with a p value of 0.00. Because the value of X2 hit> from 3,841 and the value of $p < 0.05$, this means that there is an influence between environmental sanitation and the incidence of stunting in toddlers in the Moanemani Health Centre Working Area, Dogiyai Regency, Central Papua in 2023.

Table 4. Influence of Birth Weight on the Incidence of Stunting in Toddlers in the Moanemani Health Centre Working Area, Dogiyai Regency Central Papua in 2023

BBL	Stunting				Total	X^2	p
	Normal		Stunting				
	n	%	n	%			
Normal	49	86,2	8	15,4	58	14,303	0,000
BBLR	14	48,3	15	51,7	29		
Total	64	73,6	23	26,4	87		

Source: Data Primer, 2023

Table 4 shows that of the 58 samples with normal birth weight, 50 (86.2%) were not stunted and 8 (15.4%) were stunted, while of the 29 samples with low birth weight, 14 (48.3%) were not stunted and 15 (51.7%) were stunted. The chi square test results obtained an X2 hit value of 14.303 with a p value of 0.000. Because the X2 hit value> from 3.841 and the p value <0.05, this means that there is an influence between low birth weight and the incidence of stunting in toddlers in the Moanemani Health Centre Working Area, Dogiyai Regency, Central Papua in 2023.

Table 4. Influence of Imunisation on the Incidence of Stunting in Toddlers in the Moanemani Health Centre Working Area, Dogiyai Regency Central Papua in 2023

Imunisation	Stunting				Total	X^2	p
	Normal		Stunting				
	n	%	n	%			
Redrieved	33	84,6	6	15,4	39	4,44	0,03
Non Redrieved	31	64,6	17	35,4	48		
Total	64	73,6	23	26,4	87		

Source: Data Primer, 2023

Table 5. shows that of the 52 samples with normal birth weight, 44 (84.6%) were not stunted and 8 (15.4%) were stunted, while of the 35 samples with low birth weight, 20 (57.1%) were not stunted and 15 (42.9%) were stunted. The chi square test results obtained an X2 hit value of 8.119 with a p value of 0.004. Because the value of X2 hit> from 3.841 and the value of p < 0.05, this means that there is an influence between immunisation and the incidence of stunting in toddl3ers in the Moanemani Health Center Working Area, Dogiyai Regency, Central Papua in 2023.

Table 6. Influence of History of Infectious Diseases on the Incidence of Stunting in Toddlers in the Moanemani Health Centre Working Area, Dogiyai Regency, Central Papua, 2023

History of infectious Diseases	Stunting				Total	X^2	p
	Normal		Stunting				
	n	%	n	%			
Non History of Diaseses	49	90,7	5	9,3	54	21,60	0,00
Yet History	15	45,5	18	54,5	33		
Total	64	73,6	23	26,4	87		

Source: Data Primer, 2023

Table 6. Table 6 shows that of the 54 samples with no history of infectious disease, 49 (90.7%) were normal and 5 (9.3%) were stunted, while of the 33 samples with a history of infectious disease, 15 (45.5%) were normal and 18 (54.5%) were stunted The results of the chi square test obtained an X2 hit value of 21.60 with a p value of 0.000 Because the X2 hit value is> from 3.841 and the p value is <0.05, this means that there is an influence between the history of infectious disease and the incidence of stunting in toddlers in the Moanemani Health Centre Work Area, Dogiyai Regency, Central Papua in 2023.

DISCUSSION

Based on the results of research on factors that influence the incidence of stunting in toddlers in the work area of the Moanemani Health Centre, Dogiyai Regency, Central Papua in 2023, it can be obtained a description of the general characteristics of the respondents and the sample shows that: there is the highest age group of respondents aged 26-29 years as many as 49 (56.3%) and the lowest age group of 39-42 years as many as 3 (3.4%), the highest education of respondents is SMA as many as 38 (43.7%) and the lowest is Not School / Not Graduated Elementary School as many as 2 (2.3%), the highest occupation of respondents IRT as many as 42 (48.3%) and the lowest IRT as many as 5 (5.7%). The highest age of toddlers was 12-16 months with 18 (20.7%) and the lowest age was 22-26 months with 7 (8.0%), the gender of male toddlers was 43 (49.4%) and female was 44 (50.6%). The effect of infection on children's linear growth is obtained through a mechanism by first affecting the nutritional status of children which

then affects children's linear growth. Infection can reduce food intake, interfere with nutrient absorption, cause direct nutrient loss, increase metabolic needs or decrease the catabolic process of nutrients so that it will affect consumption patterns which will further affect the nutritional status of toddlers. If this condition lasts for a long time, it will affect the linear growth of children (18).

CONCLUTION

Environmental sanitation affects the incidence of stunting in children under five years of age in the Moanemani health centre working area, (19) Dogiyai district, central Papua. Birth weight is a factor that can affect the incidence of stunting in toddlers. Immunisation is a factor that can affect the incidence of stunting in toddlers. History of infectious disease is a factor that can affect the incidence of stunting in toddlers. From the results of the analysis of the four variables studied, the natural history of the disease and low birth weight (LBW) (20)

DAFTAR PUSTAKA

1. de Onis M, Branca F. Childhood stunting: a global perspective. Matern Child Nutr [Internet]. 2016 May 1 [cited 2024 Aug 9];12(Suppl 1):12. Available from: /pmc/articles/PMC5084763/
2. Handayani OW, Rahayu T, Budiono I, Windraswara R, Fauzi L, Siyam N, et al. Health Promotion Models to Reduce Childhood Obesity in Elementary School: A Comparison Study between Indonesia and Australia. J Sci Res Reports [Internet]. 2015 Apr 20 [cited 2024 Jan 18];7(1):1–10. Available from: https://journals.indexcopernicus.com/publication/2029771/Oktia Woro-Handayani-Health-Promotion-Models
3. Batubara F, Dwiriani CM, Riyadi H. Risk factors of undernutrition among under-two children in West Java (SSGI 2021). J Gizi dan Diet Indones (Indonesian J Nutr Diet [Internet]. 2024 Jan 31 [cited 2024 Aug 9];1(1):49–58. Available from: https://ejournal.almaata.ac.id/index.php/IJND/article/view/3646
4. Laura A. van der Velde1. Diet quality in childhood: the Generation R Study | Enhanced Reader.
5. Sri Hartati N, Sulistiowati E, Made Dewi Susilawati Pusat Penelitian dan Pengembangan Kesehatan Sumber Daya dan Pelayanan Kesehatan dan, Penelitian dan Pengembangan Kesehatan B, Kesehatan KR, Percetakan J. Pelaksanaan Program Indonesia Sehat dengan Pendekatan Keluarga (PIS-PK) di Puskesmas Implementation of the Healthy Indonesia Program with a Family Approach (PIS-PK) at Puskesmas. [cited 2024 Aug 9]; Available from: https://doi.org/10.22435/mpk.v31i3.3381
6. Zain G KR. View of Determinan Kejadian Stunting di Kabupaten Maros [Internet]. [cited 2024 Aug 9]. Available from: https://mail.online-journal.unja.ac.id/jkmj/article/view/23392/15374
7. World Health Organization. Global nutrition targets 2025: stunting policy brief [Internet]. [cited 2024 Aug 9]. Available from: https://www.who.int/publications/i/item/WHO-NMH-NHD-14.3
8. Probabilitas W, Seorang I, Menyusui H, Djaiman S, Waktu P, Ibu S, et al. TIME PROBABILITY THE MOTHER FIRST TIME BREASTFEEDING AND FACTORS ASSOCIATED.
9. Yaya S, Uthman OA, Kunnuji M, Navaneetham K, Akinyemi JO, Kananura RM, et al. Does economic growth reduce childhood stunting? A multicountry analysis of 89 Demographic and Health Surveys in sub-Saharan Africa. BMJ Glob Heal [Internet]. 2020 Jan 23 [cited 2024 Aug 9];5(1). Available from: /pmc/articles/PMC7042587/
10. Endrinikapoulos A, Afifah DN, Mexitalia M, Andoyo R, Hatimah I, Nuryanto N. Study of the importance of protein needs for catch-up growth in Indonesian stunted children: a narrative review. SAGE Open Med. 2023 Jan 1;11.
11. Mutasa K, Tome J, Rukobo S, Govha M, Mushayanembwa P, Matimba FS, et al. Stunting Status and Exposure to Infection and Inflammation in Early Life Shape Antibacterial Immune Cell Function Among Zimbabwean Children. Front Immunol. 2022 Jun 13;13.
12. Habimana S, Biracyaza E. Years Of Age In The Eastern And Western Provinces Of Rwanda: Analysis Of Rwanda Demographic And Health Survey. Med Ther [Internet]. 2014 [cited 2024 Aug 9]; Available from: http://doi.org/10.2147/PHMT.S222198
13. WHO. Sanitation [Internet]. 2024 [cited 2024 Aug 9]. Available from: https://www.who.int/news-room/fact-sheets/detail/sanitation
14. Woldesenbet B, Tolcha A, Tsegaye B. Water, hygiene and sanitation practices are associated with stunting among children of age 24-59 months in Lemo district, South Ethiopia, in 2021: community based cross sectional study. BMC Nutr [Internet]. 2023 Dec 1 [cited 2024 Aug 9];9(1). Available from: /pmc/articles/PMC9869534/
15. Fatima S, Manzoor I, Joya AM, Arif S, Qayyum S. Stunting and associated factors in children of less than

five years: A hospital-based study. Pakistan J Med Sci [Internet]. 2020 [cited 2024 Aug 9];36(3):581. Available from: /pmc/articles/PMC7150373/

16. Vonaesch P, Tondeur L, Breurec S, Bata P, Nguyen LBL, Frank T, et al. Factors associated with stunting in healthy children aged 5 years and less living in Bangui (RCA). PLoS One [Internet]. 2017 Aug 1 [cited 2024 Aug 9];12(8). Available from: /pmc/articles/PMC5552116/
17. Henny Syapitri Amila Juneris Aritonang. Enhanced Reader.
18. Soliman A, De Sanctis V, Alaaraj N, Ahmed S, Alyafei F, Hamed N, et al. Early and Long-term Consequences of Nutritional Stunting: From Childhood to Adulthood. Acta Biomed [Internet]. 2021 [cited 2024 Aug 9];92:2021168. Available from: www.actabiomedica.it
19. Dwan Vilcins*,† PDS and PJ. Environmental Risk Factors Associated with Child Stunting: A Systematic Review of the Literature | Enhanced Reader.
20. Premji SS, Wilson J, Paes B, Gray S. Cisapride: a review of the evidence supporting its use in premature infants with feeding intolerance. Neonatal Netw. 1997 Oct;16(7):17–21.