



ENVIRONMENTAL CONDITIONS ON THE INCIDENCE OF STUNTING IN SIAU DALAM VILLAGE, JAMBI

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ABSTRACT

Global data for 2018 shows that 149 million children worldwide or the proportion of toddlers experiencing stunting is 21.9%. The incidence of recurrent infectious diseases is a direct factor causing stunting, where this factor is closely related to unsanitary sanitation conditions and the behavior of washing hands with soap. This research was conducted with the aim of finding the relationship between washing hands with soap, clean water facilities and ownership of healthy latrines with the incidence of stunting in toddlers. This study used an analytic observational design and a cross-sectional approach. The sampling technique used random sampling with a total of 100 samples. Data were collected directly from respondents through interviews and observations using questionnaires and observation sheets. Data were analyzed using the chi square test. The results of the study found that there was a relationship between clean water facilities and the incidence of stunting in Siau Dalam Village, with a p value = 0.000. There is no relationship between ownership of healthy latrines and the incidence of stunting in Siau Dalam Village with a p value = 0.115. It is hoped that the puskesmas will be more active in role health education with creative methods related to making and utilizing healthy latrines and it is important to use clean water which are aspects that are considered in the triggering factors for stunting.

Keywords: Stunting, clean water facilities, Letrine.

INTRODUCTION

Stunting is a condition where children experience growth failure that occurs in the body and brain caused by malnutrition for a long time which has an impact on children who are shorter than normal children their age and have a delay in thinking seen in toddlers with a z-score value of less than -2SD (Standard deviation) which is based on the parameters of body length according to age (PB / U) or height according to age (TB / U) with anthropometric results compared to standard standards by WHO (World Health Organization) to determine which children are classified as short ¹.

Nutritional problems must be considered since it is still in the womb, this has an impact on later life such as stunted fetal growth and low endurance, and the risk of death². Likewise, after

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pregnancy, the next period of growth and development of the child's body systems and organs is often referred to as 1000 HPK (First Day of Life) which is a sensitive period because the impact that will be caused is permanent³.

Stunting is influenced by direct and indirect factors. Direct causative factors for stunting include maternal nutrition, infectious diseases, LBW history, and lack of nutritional intake among children under five, while indirect factors include food security, WASH (*water, sanitation, and hygiene*) which includes clean water sources and facilities, latrine ownership, and hygiene behavior, namely hand washing with soap¹.

The problem of stunting in Indonesia is a major nutritional problem facing Indonesia. The prevalence of stunting in Indonesia tends to decrease based on Basic Health Research (RISKESDAS) data, but this figure is still high considering the target set by WHO, which states that the prevalence of stunting above 20% is a public health problem².

Jambi Province is one of the provinces in Indonesia with a high prevalence of stunting set by WHO. Based on the results of Riskesdas data in 2018, Jambi Province has a fairly high stunting presentation of 30,2% which includes 3 districts, one of which is East Tanjung Jabung Regency with a stunting prevalence in 2018 reaching 40,9%, while in Siau Village in 2019 the stunting prevalence reached 24,21%⁴.

Poor hygiene and sanitation can cause inflammatory disorders of the small intestine that reduce nutrient absorption and increase intestinal permeability, also known as Environmental Enteropathy (EE)⁵.

Factors that have the potential to cause stunting through infectious diseases are poor sanitation conditions which include the use of latrines and water facilities that do not meet standards. Based on data from the Tanjung Jabung Timur Health Office, the coverage of proper drinking water sources is 30% and the coverage of proper sanitation is 52,60%, this has not met the national target of 100% access to proper drinking water.

The results of research by Hasan and Kadarusmas (2019) show that toddlers who do not have access to healthy latrines increase the risk of stunting by 5,25 times, and show that access to clean water facilities increases the risk of stunting by 5,99 times⁶.

Based on the above problems, researchers are interested in examining the relationship between handwashing behavior with soap, clean water facilities, and ownership of healthy latrines with the incidence of stunting in Siau Dalam Village, East Tanjung Jabung Regency.

RESEARCH METHODS

This type of research is Quantitative research with an analytical observational design and Cross-Sectional approach, which is research that studies a dynamic correlation between risk factors, and effects with data collection at a certain time ⁷. This research was conducted in November 2021. The population in this study were all toddlers aged 12-59 months in the village of Siau Dalam, East Tanjung Jabung Regency, East Sabak District as many as 153 toddlers had taken height measurements at the Lambur Luar Health Centre, East Tanjung Jabung Regency. While the sample obtained after being calculated using the Lameshow formula is as many as 100 respondents. Data were analyzed using the chi-square test.

RESULTS

1. Univariate analysis

a. Respondent characteristics can be seen in the following table:

Table 1. Frequency Distribution of Respondent Characteristics

Respondent characteristics	F	(%)
Nutritional status		
Stunting	22	20,7%
Normal	77	77,0%
Mother Age		
21-26	16	16,0%
27-32	36	36,0%
33-38	28	28,0%
39-44	15	15,0%
>45	5	5,0%
Last Education		
Not graduated from elementary/middle school	1	1,0%
Finished primary school	40	40,0%
Completed junior high school	23	23%
Completed high school	33	33,0%
D3 / S1 graduates	3	3,0%
Jobs		
Civil Servant	1	1,0%
Trader	5	5,0%
Self-employed	1	1,0%
Farmer	3	3,0%
Housewife	90	90,0%
Revenue		

<UMP	50	49,1%
>UMP	50	50,9%
Gender of children under five		
Male	54	54,0%
Female	46	46,0%
Toddler Age		
12-36 months	33	33,0%
37-59 months	67	67,0%

Table 1. Above it can be seen that the results of the study based on the characteristics of respondents, the highest proportion of normal nutritional status was 77 people (77,0%), the highest proportion of mothers aged 27-32 years was 36 people (36,0%), the highest proportion of the last education graduated from elementary school was 40 people (40,0%), The proportion of the most work is housewives as many as 90 people (90,0%), the proportion of income is the same as each >UMP 50 people (49,1%) and <UMP 50 people (50,9%), the proportion of gender of toddlers is male 54 toddlers (54,0%), and the highest proportion of toddler age is 37-59 months as many as 67 toddlers (67,0%).

b. The age of stunting toddlers can be seen in the following table:

Table 2: Age of stunted toddlers

Toddler age Stunting	F	%
29	2	8,9%
34	1	4,3%
36	1	4,3%
37	1	4,3%
39	1	4,3%
41	1	4,3%
42	3	13,0%
46	1	4,3%
47	1	4,3%
48	2	8,7%
50	1	4,3%
52	2	8,7%
55	1	4,3%
58	1	4,3%
Total	23	100%

From Table 2. above, it can be seen that there are 23 toddlers in the stunting category where the lowest age of toddlers is 29 months old and the highest age of toddlers is 58 months

old as of November 2021 or when the research was conducted.

c. Overview of Research Variable Distribution

Table 3. Frequency Distribution of Research Variables

Research variables	F	%
Clean Water Facilities		
Not Eligible	36	36,0%
Eligible	64	64,0%
Ownership Healthy Latrine		
Not have	77	77,0%
Having a toilet healthy	23	23,0%

Based on the distribution results above, shows that of the 100 respondents studied in Siau Dalam Village, the proportion of clean water facilities that meet the requirements was 72 people (65,5%). While the results of the distribution of ownership of healthy latrines found that most respondents who did not have healthy latrines were 86 people (78,2%).

2. Bivariate Analysis

Based on the results of the bivariate analysis, the results can be seen below.

Table 4. Bivariate test results of research variables

Research variable	Stunting		Normal		P
	F	%	F	%	
Water Facilities Clean					
No Eligible	16	16%	2	20%	0,000
Eligible	7	7%	5	57%	
Healthy latrine ownership					
Not have	21	21%	56	56%	0,115
Have healthy latrine	2	2%	21	21%	

From the statistical test results in Table 4, respondents who had to stunt toddlers who had clean water facilities that met the requirements were 7 respondents (7,0%). While respondents who have normal category toddlers who have clean water facilities that meet the requirements are 57 respondents (57,0%). The results of the Chi-Square test obtained a p-value of $0,000 < \alpha (0,05)$ can be concluded that there is a significant relationship between the availability of clean water and the incidence of stunting with a value of $PR = 6,753$ (95%CI: 2,340 - 18,136) which means that toddlers who come from families who do not have the availability of clean water that does not meet the requirements can be at risk 6,753 times to experience stunting compared to toddlers who come from families who have the availability of clean water that meets the requirements.

Respondents who have toddlers with stunting categories who do not have healthy latrines are 21 people (21,0%), while normal category respondents who do not have healthy latrines are 56 people (56,0%). The statistical test results obtained a p-value of $0.115 > \alpha (0,05)$ which indicates there is no relationship between ownership of a healthy latrine and the incidence of stunting (95% CI: (0,849 - 18,269).

DISCUSSION

1.The Relationship between Clean Water Facilities and the Incidence of Stunting in Siau Dalam Village, Jambi Province

Based on the regulation of Permekes RI No.416/Menkes/Per/IX/1990 in article 1 (c) it is said that what is meant by clean water is water that has the feasibility of health standards and can be drunk if it has been treated and used by the community for daily needs. The clean water needed for latrines in a day in order to support comfort when using a healthy latrine is as much as 45 liters/person/day, therefore the source of clean water should not be too far away so that it is easier for someone to access clean water.

The requirements in question are requirements in terms of water quality which include physical, chemical, biological, and radiological quality so that when consumed it does not cause side effects. In addition to factors from direct causes such as activities that are the target of specific nutrition interventions to reduce stunting, sanitation factors also have a major influence on stunting. This is one of the nutrition-sensitive interventions that involve sanitation issues.

This is supported by research conducted by Wulan Angraini et al in 2021 with the results obtained that there is a relationship between clean water facilities and the incidence

of stunting with $p\text{-value} = 0,038 < 0,05$ ¹². Supporting things can also be seen from other research conducted by Inamah et al in 2021 which also shows $p\text{-value} = 0,014$ which means that there is a relationship between clean water facilities and stunting ¹³.

However, other results show that there is no relationship between clean water facilities and stunting, for example, research conducted by Yurike Kuewa shows a $p\text{-value} = 0,841$ ⁹. Furthermore, another study from Khirana salsabila from the results of the $p\text{-value} = 0,270 > 0,05$, so H_0 is accepted, meaning that there is no significant relationship between the clean water facilities variable and the incidence of stunting ¹⁴.

Based on observations made at the research location by looking at how sanitation conditions, especially water quality and clean water facilities used by the local community, there are several water facilities used, namely those sourced from PDAM, Boring Wells, Dug Wells, and also PAH (Rainwater Storage), and the physical condition of the water that looks cloudy and even has an odor and taste which means it does not meet the requirements of clean water indicators ¹⁵.

2.The Relationship Between Ownership of Healthy Latrines and the Incidence of Stunting in Siau Dalam Village, Jambi Province

The use of latrine facilities that do not meet health requirements, the practice of open defecation, and the disposal of toddler feces not in latrines causes children to be contaminated with environmental pollution, thus facilitating the transmission of pathogens originating from feces and increasing the incidence of stunting in toddlers. sanitation is a concern in handling stunting in children starting from the construction of latrines that meet health requirements, reducing the habit of open defecation carried out by individuals, disposing of toddler feces in latrines, and paying attention to environmental hygiene while still paying attention to specific nutritional interventions ¹⁶.

The results of research from Andi iffah in 2022 showed the results of the chi-square statistical test obtained $p\text{ value} = 0,041 (< 0,05)$ which means that there is a significant relationship between ownership of healthy latrines and the incidence of stunting. Another study conducted by Rani Mariana in 2021 showed the results of data analysis with $p\text{-value} = 0,006$, which means that there is a relationship between healthy latrine conditions and stunting ¹⁷.

In another case with research conducted by Stephen Rondonuwu et al in 2016 on Nain

Island, North Mihanaha, based on the results of the chi-square test, the p-value = 0,647, which means that there is no relationship between latrine ownership and the incidence of stunting¹⁸. Another contradictory study conducted by Alfadilla Khairil et al showed that there was no relationship between latrine ownership and the incidence of stunting with a p-value = 0,22¹⁹.

Based on observations made in the field, it was found that some people already have goose neck type latrines and final disposal with septic tank reservoirs, which is an indicator of healthy latrine requirements, this is because there is proper latrine assistance provided by the village government to communities or families who have toddlers with a history of poor nutritional status or who are classified as stunting determined by Siau Dalam Village health workers based on the results of routine toddler measurements. However, this latrine assistance is not provided thoroughly to people who have stunted toddlers.

CONCLUSIONS AND SUGGESTIONS

From the results of the research that has been conducted by researchers, several conclusions can be drawn including the following.

1. There are 20,7% of toddlers in the stunting category where the lowest age of toddlers is 8,9% and the highest age of toddlers is 4,3% as of November 2021 or at the time of the research.
2. The results of univariate analysis of respondents who have clean water facilities that do not meet the requirements are 34,5% and the results of univariate respondents who do not have healthy latrines are (72,8%).
3. There is a relationship between clean water facilities and the incidence of stunting in Siau Dalam Village, East Tanjung Jabung Regency, namely with statistical tests obtained p value = $0,000 < \alpha$. So that clean water facilities that meet the requirements can prevent stunting.
4. There is no relationship between ownership of healthy latrines and the incidence of stunting in Siau Dalam Village with a p-value = 0,115.

SUGGESTIONS

1. For the Community

It is hoped that the results of this study can be used as reading material as well as information to find out more about stunting in toddlers and it is also hoped that the

community, especially mothers of toddlers, will be more active in participating in programs or socialization and education from health workers.

2. For the East Tanjung Jabung Regency Health Office

Create a method of cooperation between health centers in each sub-district in increasing community knowledge and awareness related to providing education, counseling, and information about healthy latrines and also hygiene behavior and the importance of these things being done.

3. For Puskesmas

It is expected from the health center to be more active in the role of health education with creative methods related to making and using healthy latrines and the importance of using clean water which is an aspect that is considered in the factors that trigger stunting. It is expected that environmental health workers will try to create sanitation handling activities by inviting the public to wash their hands such as soap and cloth/tissue in every public place.

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