

The Relationship of Environmental Sanitation with Incidence Of Stunting In School Children

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Abstract

Environmental sanitation is closely related to nutritional problems. One of the indicators in assessing the degree of public health is the environment, hygiene and sanitation. The purpose of this study was to determine the relationship between environmental sanitation and the incidence of stunting in school children in the Air Beliti Public Health Center, Musi Rawas Regency. The research was quantitative with a cross-sectional design. The population in this study is elementary school-age children in 2021 with a total of 200 people. The school's sampling technique was random sampling, and the selection of school children was quota sampling of 40 children per class. The sample in this study was 162 students through a randomization process. This research design uses chi-square through a logistic regression test. Results: There is a significant relationship between environmental sanitation and the incidence of stunting ($p=0.004$). Conclusions: It explains the relationship between stunting and environmental sanitation in brief. As a matter of fact, it is recommended that the public health center provide continuous socialization on the importance of maintaining and improving environmental sanitation, such as waste disposal facilities, latrines, and wastewater disposal, as well as the importance of providing balanced food, so that children's development and growth are not impeded and therefore are supported by good hygiene behavior of the children and families.

Keywords

Environmental Sanitation;
Stunting Incidents; School
Children



I. Introduction

According to Indonesia's health profile in 2018, only 69.27% of the population had access to sanitation with proper facilities (Kemenkes, 2018). This means that more than 100 million people do not have access to proper sanitation. Access to adequate sanitation and environmental hygiene is the number two international achievement target and is the outcome of one of the health sectors of the Sustainable Development Goals (SDGs) in 2030 in reducing stunting rates (Means Multi Infrastruktur, 2019). The prevalence of stunting in infants of 30.8% decreased when compared to the results of Riskesdas (2013), which was 36.2%, but the prevalence of stunting was still high when compared to the WHO standard, which was $< 20\%$ (Riskesdas, 2018). The signs of helminthiasis are recurrent abdominal pain, decreased appetite, pernicious anemia, and anal itching (South Sumatra Provincial Health Office, 2020). The fulfillment of sanitation facilities and good environmental sanitation management (Torlesse et al., 2016), hygiene behavior in children and families (Rasni et al., 2019) are determinants of stunting in toddlers so that the impact of nutritional problems on stunting can be prevented. Data from the South Sumatra Provincial Health Office in 2018 recorded the incidence of stunting in Musi Rawas Regency of 34.6%. Musi Rawas Regency is one of the underdeveloped areas in South

Sumatra.

According to data available at the Musi Rawas District Health Office in 2019, the general prevalence for malnutrition was 1.09%, for undernutrition 9.33% with a total of 10.42 for malnutrition and undernutrition. The electronic data from electronics recording and reporting systems (e-PPGBM) in 2019 stated that the nutritional status of children under the age of five at 19 public health center in Musi Rawas Regency for children was classified as short as many as 321 children and children classified as very short as many as 819 children. Of all the 19 public health center, the Megang Sakti Public Health Center is the health center with the highest stunting rate, with 431 children.

Environmental sanitation is the health status of an environment with a scope of criteria that includes the criteria for a healthy house, the availability of basic sanitation facilities such as latrine facilities, clean water facilities, garbage bins, and household wastewater disposal facilities and the behavior of residents (Wiyono et al., 2019). Good-quality housing environment sanitation is a good indication of family socioeconomics, maternal nutrition knowledge, maternal nutritional behavior, and clean-healthy living behavior in a family setting (Aridiyah et al., 2015). Based on the description above, this study aims to analyze the relationship between personal hygiene and nutritional status in elementary school-age children in the working area of Air Beliti Public Health Center and there are no previous studies and no reports related to the incidence of helminthiasis in the working area of Air Beliti Public Health Center.

II Research Methods

This study used a cross-sectional research design. This research was conducted in five elementary schools in the working area of Air Beliti Public Health Center, Musi Rawas Regency. Based on the calculation of the sample size using the two-proportion sample size formula, it was found that 162 respondents included 10% to anticipate dropout. The subjects taken were 162 people. The school's sampling technique was random sampling, and the selection of school children was done using quota sampling of 40 children per class. This study used questionnaires and measurements of height and weight (Anthropometry). The inclusion criteria were for elementary school students in grades 4-6. The children are willing to be respondents and have signed informed consents. The exclusion criteria apply to elementary school students in grades 4-6 who were not present at the time of the examination and unwilling to be respondents. Each selected student received parental consent by filling in informed consent as a sign that the subject agreed to participate in the study. Data analysis used statistical programs. We used univariate analysis, bivariate analysis using the Chi-Square test, and multivariate analysis using the logistic regression test.

III Results and Discussion

Based on the results of research conducted in five elementary schools in the area of Air Beliti Public Health Center, Musi Rawas Regency, the following figure was obtained:

3.1 Univariate Analysis

Table 1. The Frequency Distribution of Characteristics of Subjects and Parents in the working area of the Air Beliti Public Health Center

No	Variable	n	%
1)	Age		
	a. 7 – 10 Year	67	41,4
	b. 11-14 Year	95	58,6
2)	Class		
	1. Class III	4	2,5
	2. Class IV	59	34,6
	3. Class V	48	29,6
	4. Class VI	54	33,3
3)	Sex		
	a. Male	75	46,3
	b. Female	87	53,7
4)	Stunting		
	1. Yes	40	24,7
	2. Not	122	75,3
5)	Environment sanitation		
	a. Unsatisfied the requirement	69	42,6
	b. Satisfied the requirement	93	57,4
	Total	162	100,0

From table 1 above, it showed that the number of subjects whose age ranged from 11-14 years old was 95 (58.6%), in the fourth grade it was 59 (34.6%), females were 87 (53.7%), experiencing no stunting was 122 (75.3%), and environmental sanitation requirements were satisfied by 93 (57.4%).

3.2 Bivariate Analysis

Table 2. The Relationship between Environmental Sanitation and Stunting Incidences in School Children

Environmental Sanitation	<i>Stunting</i>				Total	<i>P</i>	OR96% (Min-Max)	CI
	Yes		No					
	N	%	n	%	N	%		
Unsatisfied the requirement	23	33,3	46	66,7	69	100.0	0.044	2,235 (1,082-4,620)
Satisfied the requirement	17	23,0	76	81,7	93	100.0		
Total	40	100,0	122	100,0	162			

Based on table 2 above, the statistical test result showed that respondents who experienced stunting with environmental sanitation that did not meet the requirements were 23 (33.3%) compared to the respondents who experienced stunting with satisfied environmental sanitation requirements were 17 (23.0%). From the result of the analysis, it obtained a relationship between environmental sanitation and the incidence of stunting (p value 0.044) with an OR value of 2.235, meaning that sanitation that dissatisfied the requirement was 2.2 times riskier in experiencing stunting compared to sanitation that satisfied the requirement.

3.3 Multivariate Analysis

Table 3. Result of Multivariate Analysis of Logistic Regression between Independent Variables and the Incidence of Stunting

Independent Variable	Coefficient	P	OR	95%CI
Age	-0.262	0.604	0.769	0.286-2.071
Sex	-0.164	0.668	0.849	0.401-1.795
Class	0.217	0.447	1.242	0.710-2.174
Environmental Sanitation	0.739	0.051	2.094	0.997-4.398
Constant	0.028			

Based on table 3, the result analysis of logistic regression showed that there is no variable with significant influence on the incidence of stunting.

Based on the research results, age 11-14 years 95 (58.6%), class IV 59 (34.6%), female sex 87 (53.7%), experiencing no stunting 122 (75.3%), and sanitation that meets the requirements of 93 (57.4%). The results of the analysis obtained a relationship between environmental sanitation and the incidence of stunting (p value 0.044) with an OR value of 2.235. This number implied that sanitation that did not meet the requirements was 2.2 times more likely to result in stunting than sanitation that did.

Based on the results of the study, it was found that most respondents did not experience stunting. The reason was most of the respondents had fulfilled their daily nutritional intake according to their age. In this case, knowledge, proper diet, and good environmental sanitation are the reason. This is similar to research conducted by (Sulastrri, 2012) which found that most respondents who did not experience stunting were influenced by high-knowledge mothers about good nutritional intake for their children, as well as research conducted by (Aramico & Susilo, 2016) which found that most respondents did not experience stunting or have normal nutritional status due to a proper diet as well as supported by good parenting. Based on the research (Kholidah, 2020), it found that respondents who did not experience stunting were influenced by good sanitation.

In this study, it was also found that children who experienced stunting were influenced by sanitation that did not meet the requirements. It is also influenced by improper eating habits. According to research conducted by (Laili, 2018), half of the respondents had unhealthy environmental sanitation. The study (Putri, 2020) found that the incidence of stunting was affected by diet, because a poor diet makes it risky to experience stunting. According to research from (Kencanawati et al., 2020), it found that some of the respondents who experienced stunting were influenced by poor sanitation of the housing environment. This research also found that some school children did not know how to wash their hands properly or where to dispose of trash properly.

Based on the results of this study, there is a relationship between environmental sanitation and the incidence of stunting in school children. This is supported by the

majority of respondents who experience stunting who have low nutritional knowledge, sanitation that does not meet requirements such as waste disposal facilities, latrines and sewers, and unhealthy hygiene practices, similar to research (Desyanti & Nindya, 2017) that found there is a relationship between hygiene practices and the incidence of stunting. Similar to the research (Aisah et al., 2019) that found there is a relationship between personal hygiene and environmental sanitation with the incidence of stunting, because if the respondents have good personal hygiene and sanitation, it can control the stunting incident. The research conducted by (Ni) Mah & Nadhiroh, 2021) stated that stunting occurs due to a lack of nutritional knowledge by the parents, so the children are at risk of stunting.

IV Conclusion

According to the research findings of 162 elementary school-age children in the working area of Air Beliti Public Health Center, Musi Rawas Regency, aged 11-14 years, 95 (58.6%), in the fourth class, 59 (34.6%), female gender 87 (53.7%), experienced no stunting, 122 (75.3%), and sanitation satisfied the requirements of 93 (57.4%). The results of the analysis obtained a relationship between environmental sanitation and the incidence of stunting (p value 0.044) in the elementary school-age children in the work area of Air Biliti Public Health Center, Musi Rawas Regency in 2021.

It could be advised to the public health center that they constantly educate parents about the necessity of improving personal and family hygiene, as well as persuade them to maintain sanitation conditions that meet healthy standards in order to reduce the occurrence of stunting.

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