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The Relationship Between Environmental Sanitation And The Incidence Of Diarrhea In Toddlers In The Work Area Of The Kalidawir District Community Health Center, Tulungagung Regency

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ABSTRACT
Sanitation is one of the most important challenges for developing countries because according to WHO one of the causes of diarrhea is lack of access to sanitation which is still too low. Environmental Sanitation is the health status of an environment which includes housing, sewage disposal, provision of clean water and so on. The aim of the research determines the relationship between environmental sanitation factors and complaints of diarrhea among toddlers in Kalidawir sub-district, Tulungagung district. In this research, researchers used descriptive analytical methods with a cross sectional approach. With a sample of 92 toddlers with respondents namely mothers of toddlers in the Kalidawir health center working area, Tulungagung district. The results of research on the incidence of diarrhea in toddlers found that the majority of toddlers experienced diarrhea, namely 80 respondents (87%). Sources of clean water and the incidence of diarrhea in toddlers. There is an influence between sources of clean water and the incidence of diarrhea in toddlers. It is known that the majority of respondents who have a clean water source meet the requirements with the incidence of diarrhea being 53 respondents (57.6%). The latrine facility with the most respondents having a latrine that meets the requirements has an incidence of diarrhea of 50 respondents (54.3) while respondents with a latrine that does not meet the requirements has an incidence of diarrhea of 30 respondents (32.6%). Waste processing and the incidence of diarrhea in toddlers with the most respondents having waste and waste processing did not meet the requirements with the incidence of diarrhea as many as 71 respondents (77.2%). Meanwhile, 9 respondents (9.8%) had waste processing that met the requirements. There is a need to increase outreach on environmental sanitation programs, including clean water management, healthy latrine facilities and waste processing so that people are aware and increase clean and healthy behavior among the community.

Keywords : Diarrhea, Environmental sanitation, Toddlers

INTRODUCTION

Sanitation is one of the most important challenges for developing countries because according to WHO one of the causes of diarrhea is the lack of access to sanitation which is still too low. This is in accordance with Bloom's theory which states that the level of public health is determined by environmental factors, behavior, health services, and heredity. Environmental sanitation is the health status of an environment that includes housing, waste disposal, clean water supply and so on. Environmental sanitation is intended to meet the requirements of a healthy and comfortable environment. Basic sanitation efforts include human waste disposal facilities, garbage disposal facilities, wastewater drainage, and clean water supply.

The availability of clean water is very important to meet daily needs such as cooking, bathing, washing, toilets, and for consumption. Clean water facilities that meet the requirements are uncontaminated water sources. Based on research conducted by Dini et al. (2013) that there is a significant relationship between clean water facilities and the incidence of diarrhea in toddlers. The next sanitation is wastewater drainage. This channel collects used

water from washing, cooking, bathing and so on. Waste and waste management play an important role in achieving a clean environment and achieving community sanitation.

Diarrhea is a bowel movement disorder (BAB) characterized bywith more than 3 times a day of defecation with liquid stool consistency, can be accompanied by blood (Riskesdas, 2013). Diarrhea is still a global problem with high morbidity and mortality rates in various countries, especially in developing countries, and also as one of the main causes of high morbidity and mortality rates in children in the world. The most cases of diarrhea in Asia and Africa are inadequate nutritional status in children and lack of clean water sanitation (Riskesdas, 2013). In addition, diarrhea often attacks infants and toddlers, if not treated further diarrhea will cause dehydration and lead to death (Fauziah, 2013).

Diarrhea in the Tulungagung at 2019 it spread which was marked by a spike in sufferers of up to 200 people in the last 1 month. The number of cases during October is said to be more than the September period which was recorded as being suffered by 148 people. In 2022, based on data from the Tulungagung district health office, Kalidawir sub-district, there were 1,083 cases of diarrhea of all ages and 467 cases of diarrhea were found in the toddler age group. This condition is caused by the lack of public awareness in managing environmental sanitation in the area where the community lives. The lack of water makes residents defecate in the open so that the bacteria that cause diarrhea fly away in the wind.

Clinically, diarrhea is a waterborne disease. The bacteria that cause diarrhea are transmitted through housefly vectors (Musca domestica) and humans. Symptoms of this disease are usually patients experiencing a bowel movement intensity of more than three times a day and in a runny form. Patients experience dehydration due to the large amount of fluid released during bowel movements.

The purpose of this study was to determine the relationship between environmental sanitation factors and complaints of diarrhea in toddlers in Kalidawir sub-district, Tulungagung district. The results of this study are expected to be a reference for further research and further development regarding sanitation and other environmental factors that have an impact and influence on diarrhea in toddlers.

METHODS

The method used by researchers to conduct a study that provides direction to the course of the study (Dharma, 2011). In this study, researchers used a descriptive analytical method with a cross-sectional approach, which aims to determine the relationship between variables where independent variables and dependent variables are identified in a time unit.

The advantages of cross-sectional research according to Dharma (2011) are shorter research time because the independent variables and dependent variables are measured in one time unit, and cheaper costs when compared to cohort research.

The risk of sample drop out is smaller because the research takes place in a elatively short time, it can be used to study many variables at once.

RESULTS

A. Characteristic Variable Analysis

Table 1. Characteristics of respondents (mothers of toddlers)

Data Types	f	%
Education		
SD	14	15
JUNIOR HIGH SCHOOL	33	36
SENIOR HIGH SCHOOL	40	44
S1	5	5
Total	92	100
Toddler Age		
1 year	13	14
2 years	13	14
3 years	32	35
4 years	23	25
5 years	11	12
Total	92	100
Gender		
Man	34	37
Woman	58	63
Total	92	100

Source: Primary Data, 2024

Based on the table above, it is known that most respondents have a high school education level, namely 40 children (44%). And it is known that most of the respondents' children are 3 years old, namely 32 children (35%). And most of the respondents are female, namely 58 respondents (63%).

B. Variable Characteristics Analysis

Table 2. Characteristics of diarrhea incidence variables, clean water source variables, toilet facility variables, waste and garbage processing variables.

Data Types	f	%
Diarrhea incident		
Yes		
	80	87
No	12	13
Total	92	100
Clean water source		
Not eligible		
	27	29
Qualify	65	71
Total	92	100
Toilet facilities		
Not eligible	30	33
Qualify		
Total	62	67
Waste and garbage processing	92	100
Not eligible	75	81
Qualify	17	19
Total	92	100

Source: Primary Data, 2024

Based on the table above, it is known that most toddlers with diarrhea incidents are 80 respondents (87%). And it is known that most respondents with water sources that meet the requirements are 65 respondents (71%). And most respondents with toilet facilities that meet the requirements are 62 respondents (67%). Most respondents with Waste and Garbage Processing do not meet the requirements are 75 children (81%).

Table 3. Cross tabulation between clean water sources and diarrhea incidence in toddlers

			Clean Water Source		Total
			Not eligible	Eligible	
The incident of diarrhea	Yes	N	27	53	80
		%	29.3%	57.6%	87,0%
	No	N	0	12	12
		%	0%	13.0%	13.0%
Total		N	27	65	92
		%	29.3%	70.7%	100.0%

Source: Primary Data, 2024

Based on the table above, it is known that the respondents who had the most clean water sources met the requirements for diarrhea incidents, namely 53 respondents (57.6%) and did not experience diarrhea incidents, namely 12 respondents (13%).

Table 4. Cross tabulation between toilet facilities and diarrhea incidence in toddlers

			Toilet Facilities		Total
			Not eligible	Eligible	
The incident of diarrhea	Yes	N	30	50	80
		%	32.6%	54.3%	87,0%
	No	N	0	12	12
		%	0%	13.0%	13.0%
Total		N	30	62	92
		%	32.6%	67.4%	100.0%

Source: Primary Data, 2024

Based on the table above, it is known that the respondents mostly have toilets that meet the requirements with diarrhea incidents amounting to 50 respondents (54.3%) and respondents who did not experience diarrhea incidents amounting to 12 respondents (13%).

Table 5. Cross tabulation between waste and garbage processing and diarrhea incidence in toddlers

			Waste And Garbage Processing		Total
			Not eligible	Eligible	
The incident of diarrhea	Yes	N	71	9	80
		%	77.2%	9.8%	87,0%
	No	N	4	8	12
		%	4.3%	8.7%	13.0%
Total		N	75	17	92
		%	81.5%	18.5%	100.0%

Source: Primary Data, 2024

Based on the table above, it is known that most respondents have waste and garbage processing that does not meet requirements with diarrhea incidents of 71 respondents (77.2%) and respondents who did not experience diarrhea incidents of 4 respondents (4.3%).

DISCUSSION

A. Environmental Sanitation in Kalidawir District, Tulungagung Regency

The results of the study conducted in Kalidawir sub-district on environmental sanitation consisting of clean water source variables, toilet ownership variables and waste and garbage processing variables. Based on research data conducted in the field on the clean water source variable, the results showed that most of the water sources that met the requirements were 65 respondents (71%) and respondents with water sources that did not meet the requirements with salty or cloudy water (around the beach) were 27 respondents (29%).

The variable of toilet ownership obtained the results that most respondents with toilet facilities met the requirements, namely 62 respondents (67%) and respondents with toilets that did not meet the requirements, namely without having a septic tank and directly flowing into the river, were 30 respondents (33%). While the results of the waste and garbage processing variables showed that most respondents with Waste and Garbage Processing did not meet the requirements, namely by disposing of waste and garbage in empty land behind the house, as many as 75 children (81%) and respondents with waste processing that met the requirements, as many as 17 respondents (19%).

The Ministry of Health of the Republic of Indonesia describes sanitation as an effort made to create an environment that meets health standards. The health standards referred to by the Ministry of Health are stated in PMK No. 852 of 2008 concerning Community-Based Total Sanitation which has the following components: condition of toilet buildings, condition of household waste disposal channels, provision of clean water and provision of household trash bins. According to the researcher's assumption, environmental sanitation can affect the level of health that a person will have, the better the sanitation, the higher the level of health that will be possessed.

B. The incidence of diarrhea in toddlers in Kalidawir District, Tulungagung Regency

The results of a study conducted in Kalidawir sub-district on the incidence of diarrhea in toddlers found that most toddlers with diarrhea were 80 respondents (87%) and 12 respondents (13%) of other toddlers did not have diarrhea. The incidence of diarrhea in toddlers is often one of the health threats that occurs quite often so that prevention is needed to reduce it.

Diarrhea is a disorder of defecation (BAB) characterized by defecation more than 3 times a day with liquid stool consistency, can be accompanied by blood (Riskesdas, 2013). Diarrheal disease is still a global problem with high morbidity and mortality in various countries, especially in developing countries, and also as one of the main causes of high morbidity and mortality rates in children in the world. Clinically, diarrhea is a disease transmitted through water. The bacteria that cause diarrhea are transmitted through housefly vectors (Musca domestica) and humans. Symptoms of this disease are usually patients experiencing an intensity of defecation more than three times a day and in a runny form.

According to the researcher's assumption, there are still many cases of diarrhea in toddlers in the field. This happens because of several factors, the most influential of which is due to poor environmental sanitation. The incidence of diarrhea in toddlers which is quite high is due to the condition of the toddler's body which is still very susceptible to various health problems. This is evidenced by data from the field results that out of 92 respondents, toddlers who experienced diarrhea were 82 respondents, this figure shows that there are still many toddlers who experience diarrhea.

C. The Relationship between Environmental Sanitation and the Incidence of Diarrhea in Toddlers in Kalidawir District, Tulungagung Regency

Diarrhea is the most common disease in toddlers accompanied by vomiting and diarrhea, diarrhea if not immediately given help to children can cause dehydration. For first aid

for children suffering from diarrhea with dehydration must get replacement fluids either from oralit or from IV fluids. This diarrhea disease often causes outbreaks that can be dangerous for children and people who live in areas with poor environmental sanitation, especially clean water facilities that do not meet health requirements (Wijaya and Kartini, 2019).

According to the assumption of researchers, poor sanitation can be related to the incidence of diarrhea in toddlers, especially regarding clean water sources, healthy toilet facilities and waste and garbage processing. The worse the environmental sanitation, the higher the chance of getting diarrhea. Clean water sources that do not meet health requirements will cause people who consume them to get diarrhea. Drinking water sources that have a salty taste if drunk continuously cause salt to remain in the intestinal tract, so that water will flow out of the intestines. This condition will cause intestinal contents to become thin and cause diarrhea. Drinking water sources that smell bad due to the presence of bacteria living in the water if consumed will cause diarrhea. Toilets function to collect human waste that is stored in a certain place so that it does not cause a disease or pollute the environment. Toilets are very useful for humans and are part of human life, because toilets can prevent the development of various digestive tract diseases caused by human waste that is not managed properly. Toilets that do not meet the requirements, especially regarding the distance of infiltration wells and septic tanks that are <10 m from drinking water sources can cause contamination of drinking water sources due to ecoli bacteria from human waste, if the water is consumed it can cause diarrhea. Poor waste and garbage processing where the condition of trash and waste bins is not good and throwing trash and waste in random places or just dumping it can cause unpleasant views and odors around their homes and can become a breeding ground for mosquitoes and flies as vectors that cause disease. The number of vectors that spread diseases carrying bacteria such as flies can transmit through food that is perched and if we consume it will cause diarrhea.

CONCLUSION

Based on the results of research and discussions that have been conducted on the relationship between environmental sanitation and the incidence of diarrhea in toddlers in the work area of the Kalidawir sub-district health center, Tulungagung district, the following are as follows most respondents with clean water sources that meet the requirements are 65 respondents, with ownership of toilet facilities that meet the requirements are 62 respondents, and with waste and garbage management that meets the requirements are 17 respondents and do not meet the requirements are 75 respondents. The results of a study conducted in Kalidawir sub-district on the incidence of diarrhea in toddlers found that most toddlers with diarrhea were 80 respondents (87%) and 12 respondents (13%) other toddlers did not have diarrhea. According to the study, there are still many cases of diarrhea that occur due to several factors, the most influential being due to poor environmental sanitation. Sanitationpoor environment is related to the incidence of diarrhea in toddlers. Clean water sources that do not meet health requirements will cause people who consume them to get diarrhea. Toilets function to collect human waste that is stored in a certain place so that it does not cause a disease from ecoli bacteria. Poor waste and garbage processing where the condition of trash and waste bins that are not good can cause unpleasant views and odors and vectors of disease.

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