

Basic Sanitation With Diarrhea

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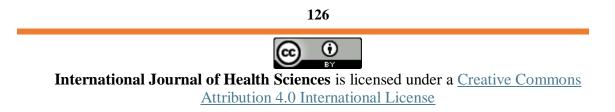
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Abstract

Aroppoe hamlet is the hamlet with the highest number of cases of diarrhea. The data obtained shows that the hamlet is one of the most densely populated hamlets with a total of 389 heads of household. There are many houses whose latrines do not meet health requirements, and the average clean water consumed is from dug wells, as well as air pollution. as a result of sewerage that does not meet health requirements. The purpose of this study was to determine basic environmental sanitation with the incidence of diarrhea in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency. The type of research used was an analytic survey research with a cross sectional study approach from a sample of 60 families of a total population of 289 families. Data presentation was carried out in the form of a table distribution accompanied by an explanation in the form of a narrative, and data analysis used the Chi-Square statistical test. The results showed that there was a relationship between the condition of clean water and the incidence of diarrhea (p=0.01), there was no relationship between the condition of the sewerage (SPAL) and the incidence of diarrhea (p=0.1). There is a relationship between the condition of the latrine and the incidence of diarrhea (p=0.03). There is a relationship between the state of clean water and latrines. The conclusion is that the lack of healthy toilet facilities is due to the lack of a residential environmental sanitation program targeting house floors and physical handling of clean water quality in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency.

Keywords: Sanitation, Diarrhea, Clean Water, Latrines

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1. Introduction

Background Diarrheal disease is still one of the main causes of morbidity and death. Almost all geographic regions of the world and all age groups are attacked by diarrhea, but it is a serious disease with high mortality. Diarrhea is a disease characterized by an increase in the frequency of defecation more than usual (> 3 times/day) accompanied by a change in stool consistency (to become liquid), with or without blood or mucus (Suraatmaja, 2012). According to WHO (2011), diarrhea is defined as three or more loose stools a day and one night. Based on the time of attack, it is divided into two, namely acute diarrhea (< 2 weeks) and chronic diarrhea (≥ 2 weeks) (Widoyono, 2013). In North America, children suffer from diarrhea more than 12 times per year (Pitono et al, 2006) while according to Zubir et al (2006) diarrhea causes 15-34% of all deaths, approximately 300 deaths per year. Based on the research results of Ratnawati et al (2011) showed that 35% of all under-five deaths were caused by acute diarrhea. In Indonesia the diarrhea morbidity rate in 2012 was 6.7 per 1,000 population, while in 2013 it increased to 10.6 per 1,000 population. The death rate from diarrhea is still quite high. The National Health Survey shows that diarrhea is the second cause of death, which is 23.0% in toddlers and number three, which is 11.4% in infants (Zubir et al, 2016). Environmental sanitation is the health status of an environment which includes housing, sewage disposal, clean water supply and so on (Notoadmojo, 2013). An environment with poor sanitation will also have a negative impact on health. Various types of diseases can arise because the environment with poor sanitation is a source of various types of diseases. Adequate sanitation is the foundation of development. However, sanitation facilities are far below the needs of the population which continues to increase. As a result, various types of diseases appear, one of which is diarrheal disease. (Notoatmodio, 2017). The lack of environmental sanitation, such as handling waste, wastewater, clean water, feces, sewerage, and public health, has led to the continued high mortality from diarrheal diseases and has played an important role in inviting the emergence of various disease-carrying vectors. Until now, the government's handling of environmental sanitation still faces many obstacles. The number of facilities that are not proportional to population growth. In addition, people in many areas still practice unhealthy lifestyles, such as defecating in gardens or rivers where the water is dirty, washing in rivers where the water is dirty, and so on. Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency is one of the densely populated hamlets, while the total number of families is 389 families with a total of 172 houses in Tellumpanua village, and is the highest number of cases of diarrheal disease, namely in 2019 the number of cases of diarrheal disease as many as 26 people, in 2020 there were 21 people and in 2021 the data per September were 29 people. From the results of observations there are still many houses whose latrines do not meet health requirements, the average consumption of clean water is from dug wells, and there is air pollution due to sewerage channels that do not meet health requirements. Based on the above, the researchers are interested in researching the relationship between basic sanitation and the incidence of diarrhea in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency in 2021.

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Based on the problems above, the researchers are interested in knowing how basic sanitation is related to the incidence of diarrhea in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency in 2021.

2. Research Method

The type of research used was an analytical survey research with a Cross Sectional Study approach to determine the relationship between basic environmental sanitation and the incidence of diarrhea in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency in 2021. This research was carried out in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency and was conducted in November 2021. The population in this study were all heads of families in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency, totaling 289 heads of families. The sample in this study were 60 heads of families in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency, totaling 289 heads of families. The sample in this study were 60 heads of families in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency.

3. Results And Discussions

- a. Result
 - 1. Research Variables
 - a) Diarrhea incident

The results of respondent distribution data regarding the incidence of diarrhea in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency.

Table 1. Data on the Distribution of Respondents About the Incidence of Diarrhea AroppoeHamlet, Tellumpanua Village, District Tanete Rilau Barru Regency.

No	Diarrhea incident	Total	
		n	%
1.	Suffer	31	50.8
2.	Not Suffering	29	47.5
	Total	60	100

Source: Primary Data

Based on Table 1. it is known that the incidence of diarrhea was 31 respondents (50.8%) who answered that they had diarrhea, and 29 respondents (47.5%) who did not suffer from diarrhea. The total number of respondents was 60 respondents.





b) State of Clean Water

Table 2. Data on the Distribution of Respondents About the State of Clean Water AroppoeHamlet, Tellumpanua Village, District Tanete Rilau Barru Regency.

No	State of Clean Water	Total	
		n	%
1.	Qualified	30	50.0
2.	Not eligible	30	50.0
	Total	60	100

Source: Primary Data

Based on Table 2. it is known that those who answered the condition of clean water that met the requirements were 30 people (50.0%), and the condition of clean water that did not meet the requirements was 30 workers (50.0%).

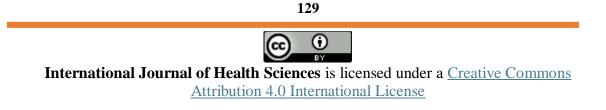
c) Condition of Waste Water Disposal (SPAL)

Table 3. Respondent Distribution Data About Wastewater Sewerage Aroppoe Hamlet,Tellumpanua Village, Tanete Rilau Districb Baru district.

No	Keadaan SPAL	Total		
		n	%	
1.	Qualified	29	48.3	
2.	Not Eligible		31	51.7
	Total	60	100	

Source: Primary Data

Based on Table 3 it is known that those who answered SPAL conditions that met the requirements were 29 people (48.3%), and SPAL conditions that did not meet the requirements were 31 people (51.7%).





d) The State Of The Latrine

Table 4. Data on the Distribution of Respondents on the Condition of Latrines in AroppoeHamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency.

No	The state of the latrine	Total	
		n	%
1.	Qualified	30	50.0
2.	Not Eligible	30	50.0
	Total	60	100

Source: Primary Data

Based on Table 4. it is known that 30 people (50.0%) answered that the condition of the latrines met the requirements. And the condition of latrines that do not meet the requirements is 30 people (50.0%).

b. Discussion

Based on the results of the primary and secondary data presented in tabular form (1 to 10), the factors related to the incidence of diarrhea in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency in 2021 will be discussed. The relationship between clean water, the state of the sewerage (SPAL) and the state of the latrines with the incidence of diarrhea.

 The Relationship Between the Condition of Clean Water and the Incidence of Diarrhea in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency.

Clean water is a type of water-based resource that is of good quality and is commonly used by humans for consumption or in carrying out daily activities including sanitation (Wikipedia, 2021). Based on cross table 2.8 which shows the number of respondents from 60 respondents who answered the condition of clean water that did not meet the requirements and suffered from diarrhea as many as 20 respondents (66.7%) while the condition of clean water that met the requirements and did not suffer from diarrhea was 21 respondents (70.0%). Water is said to be unclean if it contains germs, worms or toxic chemicals. Living germs that are too small to see cause many types of diseases and worms such as tapeworms, hookworms, roundworms and cause a number of serious illnesses. Germs and worms live in human and animal waste such as human and animal waste is not disposed of properly, water sources are not protected and kept clean and there is

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not enough water for bathing. There are several adverse impacts on health due to the condition of clean water that does not meet the requirements in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency, including the incidence of diarrhea. Diarrhea can spread quickly and can cause many deaths. Other diseases caused by germs and worms can cause chronic illness and lead to other health problems such as dehydration, infection, anemia and malnutrition. Because the most common symptom of diseases caused by germs and worms is diarrhea, these diseases are often called diarrheal diseases. The government must set minimum performance standards for PDAMs, carry out regular monitoring, enforcement and provide incentives as work appreciation (hublang, 2019). Based on the results of the study between the condition of clean water and the incidence of diarrhea, a p-value of 0.01 was obtained. This shows that there is a significant relationship between the condition of clean water and the incidence of diarrhea in the community in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency. The results of observations that have been made are that most of the people in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency use clean water sources from dug wells, where the dug wells are not closed and the edges of the wells are not concreted so that water can seep down into the well. The source of clean water is from dug wells that are used by the people of Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency for their daily water needs and even used as drinking water. Water used that does not meet health requirements can cause diarrhea for those who consume it.

2) Correlation Between the State of the Waste Water Sewer (SPAL) and the Incidence of Diarrhea in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency.

Wastewater is used water that comes from bathrooms, kitchens or laundry which can contaminate water sources such as wells, rivers or rivers and the environment as a whole. There are many impacts that can be caused by the absence of SPAL that meets health requirements. The first thing that is felt is disturbing the view, and it looks dirty because waste water flows everywhere. In addition, wastewater can also cause a foul odor, thereby reducing comfort, especially for people passing around the house. Wastewater can also be used as a breeding ground for mosquitoes which can transmit diseases such as malaria. Equally important is the widening of the waste water, reducing the area of land that could be used (Bppsdmk.Kemkes, 2021). Based on statistical tests which showed the number of respondents out of 60 respondents, there were 13 respondents (41.9%) who answered that the SPAL condition met the requirements and did not suffer from









diarrhea. Meanwhile, 18 respondents (58.1%) did not meet the requirements for SPAL and suffered from diarrhea. The hilly environmental conditions in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau Sub-District, Barru Regency, make the residents' houses disorganized, so that the SPAL for each house is also irregular and most of them do not meet health requirements, which causes stagnant water and a bad smell. This is what causes air pollution. or a breeding ground for germs so that this can cause diarrheal disease in the local community.

The results of the statistical test showed that there were houses whose SPAL did not meet the health requirements but did not suffer from diarrhea. This was because the occupants of the house supported the cleanliness of the home environment, covered all food and water consumed, cooked before drinking.

Based on the results of the study between the condition of SPAL and the incidence of diarrhea, the results of the chi-square analysis found a value of $P = 0.1 > \alpha$ (0.05). This shows that there is no significant relationship between the condition of SPAL and the incidence of diarrhea in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency.

Relationship Between Latrine Conditions and Diarrhea in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency.

A latrine is a disposal of human waste, which is meant by disposal here, only a place for disposal of feces and urine (Untari, 2017). Family latrine is a building that is used to dispose of and collect human excrement or excrement which is commonly called a latrine/WC so that the dung is stored in a certain place and does not cause or spread disease and pollute the residential environment, each house should have its own latrine which is one of the an important thing in efforts to maintain environmental health (Chandra, 2012) (Rimadhian Rima, 2021).

The requirements for a healthy latrine include not contaminating the source of drinking water. The location of the sewage collection pit is at least 10 meters from drinking water wells: hand pump wells, dug wells, and others. It is odorless and cannot be touched by insects or rats. For this reason, the stool must be tightly closed, for example by using a goose neck or a tight hole cover. Urine and cleaning water do not contaminate the surrounding soil. For this reason, the toilet floor must be wide enough, at least 1 x 1 meter in size, and made quite sloping/sloping towards the squatting hole. Easy to clean, safe to use, for that it must be made of strong and durable materials (Alyaa Wijayanti, 2017).

Generally, diarrhea occurs due to bacterial infections, originating from the types of Enterocoli, Shigella, Salmonella, or Staphylococcal Enterocolitis which is known as bacillary dysentery. Viruses mostly come from Enterovirus and amoeba types, originating from the Entamoeba Histolyca bacterium and are most common

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in tropical countries. These germs usually occur because of unhealthy or dirty latrines and unclean lifestyle. Dirty latrines can cause various germs to thrive and contaminate drinking water, food and other things that can cause a person to get diarrheal disease (Genbest, 2021).

The condition of the latrines in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency, the highest toilet is the goose neck latrine while the lowest is in the ditch. The cleanliness of the latrines in Tellumpanua Village, Tanete Rilau District, Barru Regency is still not well maintained, because the community still has insufficient knowledge about how to maintain the cleanliness of the latrines in every house.

Based on cross table 10 which shows the number of respondents, out of 60 respondents, there were 11 respondents (36.7%) who met the requirements for latrines and did not suffer from diarrhea. While the condition of the latrines that did not meet the requirements and suffered from diarrhea was 10 respondents (33.3%).

Based on the results of the study between the condition of the latrines and the incidence of diarrhea, the results of the chi-square analysis found a value of $P = 0.03 < \alpha$ (0.05). This shows that there is a relationship between the condition of the latrines and the incidence of diarrhea in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency.

Toilets that do not meet the requirements can cause odor pollution and can be a breeding ground for germs which can be one of the factors causing diarrhea. Most of the toilets used in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency, are mostly of the cemplung type, and there are even residents who do not have latrines.

This research is in line with research conducted by DCMS Putranti and Lilis Sulistyorini (2013) where the object of research is the relationship between latrine ownership and the incidence of diarrhea. From the results of the chi-square test on the relationship between latrine ownership and the incidence of diarrhea in Karangagung Village, Palang District, Tuban Regency, it was significant with p = 0.004 while 5% or 0.05 was used. So 0.05 > 0.004 means H0 is rejected. The conclusion is that there is a relationship between latrine ownership and the incidence of diarrhea. Therefore, community participation in latrine ownership needs to be increased through counseling activities and for those who have latrines, counseling is given so that the latrines they have are put to good use.

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4. Conclusion

Based on the results of the research and discussion, it can be concluded that:

- 1. There is a relationship between the condition of clean water and the incidence of diarrhea in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency.
- 2. There is no relationship between the condition of the Wastewater Sewer (SPAL) and the incidence of diarrhea in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency.
- 3. There is a relationship between the condition of the latrines and the incidence of diarrhea in Aroppoe Hamlet, Tellumpanua Village, Tanete Rilau District, Barru Regency.

5. Compliance With Ethical Standards

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Disclosure of conflict of interest

This research collaboration is a positive thing for all researchers so that conflicts, problems and others are absolutely no problem for all writers.

Statement of informed consent

Every action we take as authors is a mutual agreement or consent.

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