
The Correlation Between Of Dug Well Drinking Water With Diarrhea In Children The Working Area Of Padang Panyang Community Health Center Kuala Sub-District Nagan Raya District

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Abstract: Diarrhea is a disease that contributes to morbidity and mortality, especially among toddlers globally, around 1.7 billion cases of diarrhea are increasing every year in the world, so that diarrheal disease becomes a health problem. The initial survey conducted at the Padang Panyang Community Health Center found that 10 children with diarrhea had dug wells before being interviewed. The purpose of this study was to determine the relationship between dug well drinking water and the incidence of diarrhea in children under five. This study used an analytic observational method with a cross-sectional design and analyzed using the Chi-Square test with the number of research samples determined by the Slovin formula as many as 58 children under five. The results of this study indicate that there is a relationship between drinking water from dug wells and the incidence of diarrhea in toddlers, the p-value = 0.001 ($<\alpha: 0.005$; df: 1), thus the statistical decision here is that H₀ is rejected, which means that there is a significant relationship between water sources. drinking dug wells against the incidence of diarrhea in toddlers. The Odds Ratio (OR) value is 0.25 (CI = 95%), meaning that respondents who have a source of drinking water from dug wells have a 0.25 times risk of experiencing diarrhea.

Keywords: Drinking Water, Dug Well, Diarrhea, Toddlers

Introduction

Globally, diarrheal disease is an infectious disease that can cause death in children under five and infants. According to data from the World Health Organization (WHO) in 2015, there were cases of diarrhea that increased drastically so that it contributed to the death rate due to diarrhea in children under five in the world, such as in India and Nigeria as much as 42% and the morbidity rate for children under five with diarrhea as much as 39%. toddler. Diarrheal disease is the main cause of death in children under five years who die due to diarrhea about 525,000 children each year.(World Health Organization, 2015)

According to the World Health Organization (WHO in 2017, the morbidity rate of diarrheal disease in children under five in the world is largely the result of contaminated food and water sources. Data shows 780 million people do not have access to better drinking water and 2.5 billion do not have sanitation. one of the better sources of drinking water which causes malignancy from diarrhea because there is contamination of water contaminated with bacteria so that if diarrhea-carrying bacteria move into the body it will cause diarrhea and even cause death due to dehydration.(World Health Organization, 2017)

Diarrheal disease in Indonesia is a major public health problem. This is due to the high rate of diarrhea morbidity that causes many deaths, especially in toddlers, because toddlers are very vulnerable to diarrheal disease. Diarrhea can be fatal if not treated seriously because toddlers' bodies are mostly made up of water and meat, so if diarrhea occurs it is very easy to become dehydrated. The condition of environmental sanitation that has the most influence is the means of providing clean water.(Ministry of Health RI, 2018)

Water as a basic requirement for human life, the water needed is water that meets health requirements, both physical, chemical, bacteriological and radioactive. Water that meets health requirements does not contain substances that can be a source of transmitting deadly diseases due to microorganisms contained in drinking water sources. One of the clean water facilities used by the community is dug wells. The results of basic health research in 2014 show that the largest proportion of households based on drinking water sources in Indonesia are dug wells (22.5%), refill water (21%) and bore wells / pumps (12.8%). (Ministry Of Health Basic research, 2014)

This is due to the fact that dug wells are easy to manufacture and can be made by the community itself with simple equipment and the cost is relatively cheap but dug wells have a very high risk of contamination because they are easily contaminated through seepage, generally from human waste disposal sites, animals also come from waste. the well itself, both the floor and the sewerage are not watertight. Contamination in dug wells can cause dug well water to decrease the quality of clean water used as a source of clean water. (Summers R.J., 2011)

Causes of diarrhea according to the results of research conducted by Birawida A.B, et.al in 2020, regarding sanitation and the presence of bacteria in drinking water with the risk of diarrhea on Barrang Lumpo Island. The results of the study found that the incidence of diarrhea in 11 samples was 65.0% with basic community sanitation conditions for the provision of drinking water sources that did not meet health requirements. Someone who has diarrhea has something to do with using drinking water sources contaminated by microorganisms such as diarrhea-carrying bacteria. Bacteria that enter the body will cause infection. One of the reasons for this is because the conditions dug wells do not meet the requirements for drinking water. (Birawida A.B., et.al, 2020).

Other studies have also shown a relationship between dug well conditions and the incidence of diarrhea in children under five in 2019. Regarding the correlation between house sanitation conditions, access to drinking water and clean and healthy living habits with the incidence of diarrhea in Purbalinggo Regency. The problem of diarrhea disease in all the working areas of Purbalinggo district health center in 2015-2017 following the cause of diarrhea, there was a very weak correlation between access to drinking water and the incidence of diarrhea p -value = 0.02. (Sari. D.L, 2019)

Aceh Province is one of the contributors to the mortality rate obtained due to diarrhea in 2018 as many as 140,116 cases with the percentage of use of proper water sources in Aceh as much as 64.85. This data is mostly obtained in the Nagan Raya district with 624 cases of diarrhea due to diarrhea in children under five in the area of Kuala Village, Padang Panyang District, having experienced diarrhea as many as 58 children under five. In addition, the researchers conducted a preliminary survey at the research location to complete data on the use of dug wells which are used as a source of drinking water, as many as ten houses have dug wells that are not healthy because they do not have watertight and are close to places for defecating and close to livestock sheds. (Profile of the Aceh Nagan Raya Health Office, 2018)

Methods

This type of research design used quantitative with cross-sectional analytical survey method that tries to explore how and why the phenomenon of diarrhea in children under five occurs in the working area of Puskesmas Padang Panyang, Kuala District, Nagan Raya Regency. Furthermore, analyzing the dynamics of the correlation between risk factors through

observation and an approach using a questionnaire and collecting data either directly or indirectly obtained at the research location.

The independent variable in this study is the use of water sources from dug wells and the dependent variable is children with diarrhea. The target population in this study were mothers of children under five who had diarrhea. The sample used was in accordance with the inclusion criteria. Determination of the sample in this study using the correlation coefficient formula with a sample size of 58 toddlers with diarrhea.

Result

Table 1. The relationship between the use of dug wells and the incidence of diarrhea in children under five in the working area of Padang Panyang Health Center, Kuala District, Nagan Raya District

Dug Well Water Usage Category	Incident	Diarrhea	PR (95%CI)	P-Value
	Yes (%)	Not (%)		
- Yes. Using dug well water	(15) 55,6%	(12) 44,8%	0,25	0,001
- Do not use dug wells	(6) 19,4%	(25) 80,6%		

From table 1. above shows the results of the study with a value of $\alpha = 0.001$ which indicates that there is a relationship between the use of dug wells and the incidence of diarrhea in children under five in the area of the Padang Panyang Health Center, Kuala District, Nagan Raya District. The results obtained in the category using dug wells were 63.8% and those that did not use dug wells were 36.2%, so it can be concluded that the risk factors of using dug wells that do not have water sealants and meet the requirements for clean water can indicate a risk of 0.25 times can experience diarrhea in toddlers.

Discussion

The incidence of diarrhea in table 1. It can be seen that the number of respondents who experienced diarrhea was greater than those who did not have diarrhea, so this is an important momentum to remember because diarrhea is still endemic in the community's environment so this needs to be considered in the use of drinking water sources. water that has good conditions when consumed. The most vulnerable group is toddlers if the source of drinking water consumed has microorganisms in it, it will cause bad impacts such as diarrhea and can even become an extraordinary event if the source of the problem is not eliminated.

Based on the results of the chi-square statistical test, it was obtained that the p-value = 0.001 with a value of $\alpha = 0.05$, meaning that the p-value = 0.001 ($<\alpha = 0.05$) with a PR of 0.25, which means that H_0 is rejected and H_a is accepted, thus it can be stated that there is a significant relationship between the use of dug well water and the incidence of diarrhea in children under five in the working area of Padang Panyang Community Health Center, Kuala District, Nagan Raya Regency.

The results of this study are in line with research conducted by Utami V, Sunarsih and Camelia A in 2012 regarding the relationship between the bacteriological quality of dug well water and maternal behavioral factors with the incidence of diarrhea in children under five in

the work area of the Pasar Prabumulih health center with the acquisition of p -value = 0.026 and the value of $\alpha = 0.05$, which means that there is a relationship between the use of dug wells and the incidence of diarrhea in children under five (Utami V, Sunarsih and Camelia A, 2012)

Other studies also have similarities with the results of research conducted by the author proving that the quality of dug well water is a very determining risk factor for experiencing diarrhea. Dug well water that meets the requirements, namely that there are no other substances or microorganisms that are not useful can affect water quality. According to the research results of Rasako F.R. et.al, 2018, regarding the relationship between the bacteriological quality of dug well water and the incidence of diarrhea in Waihaong Village, Ambon City. The results showed that there was a relationship between dug well water sources as drinking water with the incidence of diarrhea with the acquisition value of $p = 0.004 < \alpha = 0.005$ meaning that it had a significant relationship between the use of dug wells and the incidence of diarrhea. Water from dug wells is used for household daily needs such as drinking, cooking, washing, bathing and latrines. The condition of dug wells is open, most of them are still from the ground without using rings, so that contamination of feces and livestock manure will easily become contaminated so that the quality decreases.

Conclusion

There is a relationship between the use of dug wells and the incidence of diarrhea (P -Value = $0.001 < \alpha = 0.05$) in children under five in the working area of the Padang Panyang Health Center, Kuala District, Nagan Raya District.\

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