

The Correlation Between the Use of Latrines And Diarrhea on Under-five Children at Lumajang District, East Java.

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Abstract:

Background: Diarrhea in under-five children becomes a second cause of child's mortality in the world, particularly in a developing countries. East Java province was one of the three provinces that experienced an extraordinary event of under-five children' diarrhea in 2016. Lumajang district was a part of East Java province in 2017 that sit on 4th position whom the people suffer from diarrhea. 45,08% of the patients are under-five children.

To analyze the correlation of using latrines and the incidence of diarrhea in under-five children at Lumajang district, East Java province.

This research is an observational analytic study by using cross sectional study approach. The total number of samples are 80 under-five childrens using proportional random sampling. The research instruments are using questionnaires and check list. The analysis is using chi square test.

Based on the statistic test, this research has obtained value $p=0,004$, which means there is a correlation between a healthy latrines and diarrhea in under-five children at Lumajang district, East Java.

The use of toilet latrines that does not meet the criteria is related to diarrhea in under-five children incidents. It is expected for the people to use toilet latrines that meets the criteria.

Keywords: Sanitation, Infectious Diseases, Under-five Childrens

Date of Submission: 25-09-2018

Date of acceptance: 11-10-2018

I. Introduction

Diarrhea in under-five children become the second leading cause of child mortality in the world. It causes more deaths in under-five children rather than malaria and measles.¹ The cause of diarrhea according to the World Health organization in 2016 is food contamination and the availability of clean water.²

Indonesia is a developing country that has health issues, one of them is diarrhea disease that considered as an endemic disease in certain regions, especially in eastern Indonesia.

Basic health research report in 2013, the highest diarrhea patients came from the children under five years old. The highest incidence of diarrhea in under-five children are 7.6% at 12-23 months, 5.5% are male and 5.3% resides in rural areas.³

East Java is one of the three provinces that often experiences an extraordinary event. Lumajang district is a part of East Java province. Diarrhea from year to year is still a problem in there. Based on the EHRA (*Environmental Health Risk Assessment*) survey result in Lumajang district, the second highest number diarrhea patients 25, 80% are under-five childrens. In 2017 cases of diarrhea in Lumajang District experienced a significant increase from the previous year.

According to the data of the 10 most diseases in Lumajang district in 2016, diarrhea disease ranked 6th while in 2017 it was in the 4th rank with the number of cases 12.706 diarrhea patients, of whom the 5.728 patients were under-five childrens by 45.08%.

The most dominant risk factor that affecting the cause of diarrhea on infant is the implementation of unhealthy latrines. It is because of the people dispose their feces in simple latrines (pit latrines), so that microorganisms may return vertically into the soil then it causes the diseases transmission through feces.

Since 2006 to 2017, Lumajang district has declared 7 ODF sub districts (Open Defecation Free). However, it apparently did not affect the number of diarrhea that continue to increase every year. The second highly percentage of diarrhea patients in Lumajang district came from infant. Therefore, it is necessary to do a research about the correlation of using latrines and diarrhea in under-five children in Lumajang district, East Java.

II. Method

This is an observational analytic research using cross sectional approach. The sample used in this research are from population of 2.174 under-five children by implementing proportional random sampling. Total samples are 80 respondents. The research instruments are questionnaires and check list. The analysis is using chi square test. Location of the research was carried out in 4 sub districts (Gucialit Subdistrict, Padang District, Kunir Subdistrict and Jatiroto District) in Lumajang District, East Java Province.

III. Result

Respondent Characteristics

Based on the research result, female under-five children have more proportions rather than men with 47 under-five children, or 58, 8%. The age distribution of under-five children are between 12 to 60 months with proportions of under-five children in 12 to 36 months are higher in 66,3%. The mother's education background showed that the highest level of education are graduate from elementary school by 43,8%. In detail, the description of the research variables can be seen in table 1 below:

Tabel 1. Univariate analysis

| Variable | p-value | RP | 95% CI |
|-------------------------------|------------|-------|-------------|
| Healthy latrines usage | 0,004 | 2,079 | 1,250-3,461 |
| Ineligible | 43 (53,8%) | | |
| Qualify | 37 (46,3%) | | |

IV. Discussion

The correlation between the uses of latrines and infant's diarrhea in Lumajang district, East Java.

Most of 75% diarrhea diseases are caused by germs such as viruses and bacteria. The mechanism of the occurrence of diarrheal disease transmission through orophecal are as follows: First through water, it occurs if the water has been contaminated. Secondly through feces that are infected by viruses or bacteria in a large numbers that are perched to animals and then to the food. Third, there are factors that can increase the risk of diarrhea such as not washing hands when processing food.

According to the research of using healthy latrines with chi-square statistic test, showed that there was a significant relation between the use of latrines with infant's diarrhea (p -value = 0,004), [RP= 2,079 (95% CI; 1,250 - 3,461)]. This can be interpreted that the use of latrines that do not meet the criteria have a risk of 2,079 times to experience the under-five children' diarrhea in under-five children compared to the use of latrines that meet the qualification.

From the observation results at the research location in Gucialit, padang, kunir and Jatiroto sub-districts, some respondents still use unhealthy latrines. The latrine used by the respondents are the *plengesengan* model behind the house without a lid. The other respondents' latrines that do not meet the qualification are latrines with disposal stool directly to the river.

Feces disturbances toward the environment is not only about the aesthetic values but also the occurrence of odors that stimulate flies so that the transmission process of the disease occurs because the feces act as a source of infection. Through feces infections, the infected feces contain large amounts of viruses or bacteria. If the feces is being perched by an animal and then the animal landed on the food, then the food can transmit diarrhea to the person who eats it.

The use of latrines that do not meet the criteria will increase the risk of diarrhea compared to the use of latrines that meet the qualification. The use of unhealthy latrines is done on simple latrines (*cemplung* latrines), so microorganisms can enter again vertically at least 3 meters deep to the other side depending on the type and condition of the soils.

The research results are in line with the Mery research in 2017 using a cross sectional research design which shows that there is a significant correlation between latrine usage behavior and the incidence of diarrhea in under-five children aged 10-59 months with p value = 0.024. Research with similar results was also carried out by Arry Pamusthi Wandansari Alfa (p value = 0.005) and Yosi Irawan in 2012 values (p = 0.019), which means there is a correlation between the use of healthy latrines and the incidence of diarrheal diseases.

V. Conclusion

There is a correlation between the use of healthy latrines ($p=0,004$) with diarrhea in under-five children.

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Wahyuni Ika Kusumawati. "The Correlation Between The Use of Latrines And Diarrhea on Infants At Lumajang District, East Java." *IOSR Journal of Nursing and Health Science (IOSR-JNHS)* , vol. 7, no.5 , 2018, pp. 67-69