

## Factors related to the event of diarrhea in toddlers aged 1-3 years in Doyo Lama village, Waibu district, Jayapura regency

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### ARTICLE INFO

#### Article history:

Received Oct 18, 2022

Revised Nov 5, 2022

Accepted Nov 22, 2022

#### Keywords:

Diarrhea  
MP-ASI  
Environment

### ABSTRACT

Diarrhea is still one of the main public health problems in Indonesia. The incidence of diarrhea in Jayapura Regency in 2017 increased by 4,265 cases and in 2018 with 4,984 cases (4.49%) treated Objective: To determine the risk factors associated with the incidence of diarrhea in toddlers aged 1-3 years in Doyo Lama Village, Waibu District, Jayapura Regency. Research Methods : Analytical descriptive research using cross sectional design Results and Discussion : There is a relationship between hand washing habits ( $p=0.000$ ), environmental status ( $p=0.000$ ) with the incidence of diarrhea and giving MP-ASI ( $p=0,360$ ), respondents' income, is not related to the incidence of diarrhea with the value of the Kruskal Wallis P test result of ( $p= 0.2480$ ) in toddlers aged 1-3 in Doyo Lama Village, Waibu District, Jayapura Regency. Conclusions and Suggestions : To mothers who have toddlers to pay more attention to the use of clean water, get used to washing hands with soap and running water, give MP-ASI on time, and maintain a clean environment that meets health requirements.

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## INTRODUCTION

Most cases of diarrhea in children under five are caused by diarrheal infections caused by bacteria and parasites. The magnitude of the morbidity rate of diarrhea in toddlers is also influenced by several factors such as toddlers who are not fully breastfed, malnutrition, measles, immunodeficiency/low immune system that aggravates diarrhea in toddlers. A number of behaviors can also increase the risk of diarrhea such as using an unclean milk bottle, storing food at room temperature, using drinking water contaminated with bacteria from feces. not washing hands after defecating, and not disposing of feces properly (Widiyanti, 2009) According to WHO, the incidence of diarrhea is often associated with contaminated water sources, inadequate sanitation, poor hygiene practices, contaminated food and malnutrition. The incidence of diarrhea can be caused by several factors, including: education, employment, socio-economic factors and factors of food and beverages consumed, toddler factors such as: toddler age, toddler nutrition, and environmental factors (Dhiana, Hestningsih, & Yuliawati, 2017). The death rate from diarrhea in Indonesia is still quite high. Indonesian Health Profile data in 2016 showed that the Extraordinary

Events (KLB) of diarrhea cases in 2015 were 4,169 patients, 12 people died with a CFR (case fatality rate) of 0.29%, in 2016 the incidence of diarrhea decreased by 1,667 but experienced an increase in deaths of 50 people with a CFR of 2.06%. Meanwhile, in 2017, 646.7 people died with a CFR of 1.08% (Ministry of Health RI, 2018) in (Bagau, Statueo, Sudarman, & Lestari, 2021). The incidence of diarrhea in Jayapura Regency in 2017 increased by 4,265 cases and in 2017 2018 with a total of 4,984 cases (4.49%) handled (Papua District Health Office, 2018 in (Bagau et al., 2021).

Poor environmental sanitation is one of the factors that increase the incidence of diarrhea due to the health status of an environment that includes housing, sewage, and clean water supply. This can cause major environmental health problems because it can cause outbreaks of diarrheal disease and affect public health conditions (Tambuwun, Ismanto, & Sillonga, 2015). Giving MP-ASI can also be at risk for diarrhea in toddlers, for example complementary foods for breastfeeding are given too early or allergic factors to food as well as nutritional adequacy which can affect the toddler's immune system in the future. Hand washing is often considered a trivial thing in society, even though hand washing can contribute to improving the health status of the community. (Tambuwun et al., 2015) The results of interviews from 10 mothers who have toddlers in Kampung Doyo Lama, 8 people said that their children had suffered from diarrhea in less than 6 months. In fact, there were 5 mothers who said that in 6 months their child suffered from diarrhea more than 2 times, so they had to be taken to the puskesmas for treatment. Based on the above background, the author is very interested in digging deeper to find out various risk factors related to the incidence of diarrhea in toddlers in Doyo Lama Village, Waibu District, Jayapura Regency.

## RESEARCH METHOD

This type of research is descriptive analytic using a cross sectional design to measure various risk factors associated with the incidence of diarrhea in children under five in Doyo Lama Village, Waibu District, Jayapura Regency. This research will be carried out in Doyo Lama Village, Waibu District, Jayapura Regency in October - November 2021. The sample of this study was selected using simple random sampling and a population of 69 mothers with children aged 1-3 years, who were registered in Kampung Doyo Lama. where respondents in Kampung Doyo Lama who meet the requirements will be simply randomized a number of samples and then will be visited to be given a questionnaire.

## RESULTS AND DISCUSSIONS

### Results

**Table 1.** Respondents characteristics

Variable	N	%
<b>Age</b>		
25-30 years	28	40.6
31-35 years	37	53.6
> 35 years	4	5.8
<b>Job</b>		
Work	59	7.3
Not Work	10	92.7
<b>Education</b>		
Senior Secondary School	64	92.8
Higher School	5	7.2
<b>Income</b>		
Rp. < 1000.000	55	79.7
Rp. 1000.000 - Rp. 2.000.000	10	14.5
> Rp. 2.000.000	4	5.8
<b>Sanitation</b>		

Good Sanitation	17	24.6
Poor Sanitation	52	75.4
<b>hand washing habits</b>		
Good	18	26.1
Bad	51	73.9
<b>Giving MP-ASI</b>		
< 6 Months	7	10.1
≥ 6 Months	62	89.9
<b>diarrhea incidence</b>		
Yes	48	69.6
No	21	30.4
<b>Total</b>	<b>69</b>	<b>100</b>

Based on Table 1, the majority of respondents were aged 31-35 years, as many as 37 people (53.6%), most of the respondents were working. The dominant respondent's education is Senior Secondary School 64 people (92.8%) The income of the majority of respondents is less than Rp.100.000. Most of the respondents have poor sanitation, respondents also rarely wash their hands and give MP-ASI for more than 6 months. Some respondents also experienced diarrhea 48 people (69.6%)

#### Factors related to the incidence of diarrhea

**Tabel 2 .** Factors related to the incidence of diarrhea

Variabel	Incidence of diarrhea				Total		P value
	Yes		No		n	%	
	n	%	n	%			
<b>Sanitation</b>							
Good Sanitation	6	35.3	11	64.7	17	100	0,000
Poor Sanitation	42	80.8	10	19.2	52	100	
<b>Hand washing habits</b>							
Good	3	16.7	15	83.3	18	100	0,000
Bad	45	88.2	6	11.8	51	100	
<b>Giving MP-ASI</b>							
< 6 Months	4	57.1	3	42.9	7	100	0,360
≥ 6 Months	44	71.0	18	29.0	62	100	
<b>Income</b>							
Rp. < 1000.000	40	72.7	15	27.3	55	100	0.248
Rp. 1000.000 - Rp. 2.000.000	6	60.0	4	40.0	10	100	

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Rp. 2.000.000                                    2    50.0    2    50.0    4    100

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Based on the table above, respondents who have good hand washing habits, there are 3 respondents who have diarrhea and 15 people who do not have diarrhea. Of the 51 respondents who had bad handwashing habits, 45 respondents or 88.2% experienced diarrhea and only 6 people or 11.8% had never experienced diarrhea. The SPSS Chi-square test results obtained P value = 0.000 < 0.05 so it can be concluded that there is a relationship between hand washing habits and the incidence of diarrhea in toddlers aged 1-3 in Doyo Lama Village, Waibu District, Jayapura Regency. From the complementary feeding < 6 months, there are 4 respondents who have diarrhea and 3 people who do not have diarrhea. Of the 62 respondents who gave complementary feeding for 6 months, 44 respondents or 71.0% had diarrhea and only 18 people or 29% had never experienced diarrhea. The SPSS Chi-square test results obtained a P value = 0.360 > 0.05 so it can be concluded that there is no relationship between the complementary feeding factor and the incidence of diarrhea in toddlers aged 1-3 in Doyo Lama Village, Waibu District, Jayapura Regency. While respondents who have good environmental sanitation there are 6 respondents who experience diarrhea and 11 people who do not. Of the 52 respondents who had poor sanitation, 42 respondents or 80.8% had diarrhea and only 10 people or 19.2% had never experienced diarrhea. The results of the SPSS Chi-square test obtained P value = 0.000 < 0.05 so it can be concluded that there is a relationship between the factors of giving MP-ASI with the incidence of diarrhea in toddlers aged 1-3 in Doyo Lama Village, Waibu District, Jayapura Regency. Respondents' income is not related to the incidence of diarrhea with the value of the Kruskal Wallis P test result of 0.248.

## Discussions

### **The relationship between hand washing habits and the incidence of diarrhea in toddlers aged 1-3 in Doyo Lama Village, Waibu District, Jayapura Regency**

From the results of the study, 18 respondents who had good hand washing habits there were 3 respondents who had diarrhea and 15 people who did not. Of the 51 respondents who had bad handwashing habits, 45 respondents or 88.2% experienced diarrhea and only 6 people or 11.8% had never experienced diarrhea. The SPSS Chi-square test results obtained P value = 0.000 < 0.05 so it can be concluded that there is a relationship between hand washing habits and the incidence of diarrhea in toddlers aged 1-3 in Doyo Lama Village, Waibu District, Jayapura Regency. The behavior of washing hands with soap is the cheapest and most effective health action compared to other measures and methods in reducing the risk of transmission of various diseases, one of which is diarrhea (Rompas, Tuda, & Ponidjan, 2013).

The study showed that most of the mothers' behavior in washing their hands in Doyo Lama Village, Waibu District was bad, namely mothers only washed their hands using running water and did not use soap, and it was rare for mothers to get their toddlers into the habit of washing their hands both before eating and when their toddlers finished holding toys. not hygienic. This could be due to the mother's lack of knowledge about PHBS. From the results of the analysis of the characteristics of the respondents, the majority of mothers' education is high school which is still in the good education category. In this study, the respondent's education was not related to hand washing behavior. Knowledge is influenced by many factors such as age, experience, information obtained from both the mass media and health workers. From the results of the characteristics of the respondents, the respondent's age is also predominantly young, with an average of 25 years - 35 years resulting in a lack of experience about good hand washing behavior to prevent disease. Therefore, it is important for mothers to increase knowledge about washing hands with soap to avoid germs, diligently seeking information from the internet. Health workers should also provide counseling to the community more often about clean and healthy living behaviors, especially good and correct hand washing habits (Purwandari & Ardiana, 2013).

### **The relationship of the factor of giving MP-ASI with the incidence of diarrhea in toddlers aged 1-3 in Doyo Lama Village, Waibu District, Jayapura Regency**

The results showed that from 7 respondents who gave complementary feeding < 6 months, there were 4 respondents who had diarrhea and 3 people who did not. Of the 62 respondents who gave complementary feeding for 6 months, 44 respondents or 71.0% had diarrhea and only 18 people or 29% had never experienced diarrhea. The SPSS Chi-square test results obtained a P value = 0.360 > 0.05 so it can be concluded that there is no relationship between the complementary feeding factor and the incidence of diarrhea in toddlers aged 1-3 in Doyo Lama Village, Waibu District, Jayapura Regency.

In this study, giving MP-ASI was not associated with the incidence of diarrhea, meaning that giving MP-ASI is not a risk of causing diarrhea, because diarrhea has many risk factors other than MP-ASI, such as poor sanitation, hand washing habits, toddler nutrition, toddler immunity and so on. But even so, timely complementary feeding will be good for toddlers, this is because the digestive system in children aged after six months has been able to receive food intake properly (Minarti & Mulyani, 2016).

This study contradicts Maharani's research (2016) which states that there is a relationship between the time of giving MP ASI with the incidence of diarrhea in infants aged 0-12 months. This happens because the factor of giving complementary foods to breast milk is too early, because the digestive system of babies at the age of 0-6 months is still immature and not ready to accept various types of food. Previous research studies have shown a significant relationship between the provision of complementary foods and the incidence of diarrhea, so mothers who have babies should pay attention to the right time to give complementary foods to their children. Although it is not a specific cause of diarrhea, but giving MP-ASI on time will also prepare the digestive system to be more mature in digesting food, so that food can be absorbed properly, digestive enzymes are well secreted in food metabolism, thus the baby's growth will be more optimal.

### **The Relationship between environmental status factors and the incidence of diarrhea in toddlers aged 1-3 in Doyo Lama Village, Waibu District, Jayapura Regency**

The results showed that there was a significant relationship between environmental sanitation and the incidence of diarrhea in toddlers aged 1-3 in Doyo Lama Village, Waibu District, Jayapura Regency. The respondent's environment in Kampung Doyo Lama was dominantly bad, there were 42 respondents who stated that the water they consumed was not hygienic, rarely cleaned their houses, and rarely cleaned latrines. This unclean environment is a breeding ground for germs that cause diarrhea. This is reinforced by the theory which states that poor water sanitation will play a major role in the spread of infectious diseases (Samiyati, Suhartono, & Dharmino, 2019). Amaliah (2010) stated that from the perspective of Preventive and Community Medicine, the provision of clean water sources must can meet the needs of the community because the limited supply of clean water will facilitate the emergence of various diseases in the community. Water intended for human consumption must come from clean and safe sources. So that the worse the physical quality of the water, the more germs that cause disease, especially infectious diarrhea. diarrhea-causing bacteria such as salmonella, shigella, E. Coli and yersina. The physical quality of water really affects the incidence of diarrhea in toddlers

This is in accordance with previous researchers that there is a relationship between environmental sanitation and the incidence of diarrhea. Saleh's research (2014) shows that there is a relationship between the physical quality of clean water and the incidence of diarrhea in toddlers. In addition to the clean water factor, the factor of maintaining unclean latrines can also trigger diarrhea. According to Saleh (2014) that the disposal of feces in rivers can transmit disease. Stool that is disposed of in an open state can be used by flies to lay eggs. Flies play an important role in disease

transmission, one of which is diarrheal disease through feces that land on human feces and human food.

A healthy home also needs attention. Some respondents in Kampong Doyo Lama stated that they rarely clean their houses even though they are healthy homes, the type of floor of the house that is not dusty in the dry season and not wet in the rainy season, the tile or cement floors are good, the behavior of the residents of the house who is diligent in cleaning the floor properly will prevent diseases including diarrhea.

### **The Relationship of Respondents' Income with the Incidence of Diarrhea in toddlers aged 1-3 in Doyo Lama Village, Waibu District, Jayapura Regency**

Based on table 2, the respondent's income is not related to the incidence of diarrhea with the results of the P value:  $0.248 > 0.05$ . Income is a reflection of a person's socio-economic conditions, in this study income is not related to the incidence of diarrhea in the sense that respondents with low incomes do not necessarily have diarrhea often, as well as respondents with high incomes may get diarrhea. Diarrhea is related to clean and healthy living behavior. Community understanding and behavior about clean and healthy living is one of the factors associated with the incidence of diarrhea. This is in accordance with research (Kansa RavidA, 2022) that income is not related to the incidence of diarrhea.

## CONCLUSION

There is a relationship between hand washing habits and the incidence of diarrhea, environmental status and no relationship giving MP-ASI, respondents' income with the incidence of diarrhea in toddlers aged 1-3 in Doyo Lama Village, Waibu District, Jayapura Regency.

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