International Journal of Science and Healthcare Research
Vol.6; Issue: 1; Jan.-March 2021
Website: ijshr.com
Research Paper *ISSN: 2455-7587*

The Relationship between Handwashing, Fly Density and Sewerage on the Incidence of Diarrhea in Toddlers in Serdang Bedagai District in 2020

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ABSTRACT

Diarrhea is an environmentally based disease and occurs in almost all geographic areas in the world. The problem of diarrhea in Indonesia often occurs in the form of extraordinary events (KLB). This study aims to determine the relationship between handwashing, fly density, and sewerage on the incidence of diarrhea in toddlers in Serdang Bedagai District in 2020. This type of research is descriptive analytical using a cross-sectional design with a total sample size 61 respondents. The instruments used in this research were questionnaire and fly grill. The data obtained in this study were analyzed by bivariate analysis. The results of the bivariate analysis showed that there was a significant relationship between handwashing (p=0.001), fly density (p=0.002), sewerage (p=0.018) on the incidence of diarrhea in toddlers in Serdang Bedagai District in 2020.

Keywords: Handwashing, Fly Density, Sewerage, Incidence of Diarrhea

INTRODUCTION

Diarrhea is an environmentally based disease and occurs in almost all geographic areas in the world.

Diarrhea is the discharge of stool that is more fluid than usual with a frequency of more than three times a day or occurs more often than usual in a person, which is generally a symptom of a digestive tract infection caused by microorganisms from food, drinking water, or directly from people; the result of lack of sanitation (World Health Organization, 2016)

The World Health Organization states that diarrheal disease is a disease that can basically be prevented by using or consuming safe drinking water sources, as well as adequate sanitation and hygiene (World Health Organization, 2016).

Diarrhea is in the second rank as the cause of death in children under five, both preventable and treated. Every year diarrhea causes the death of two billion children in the world, where as many as 525,000 cases of death are among children under five. Diarrhea in the under five group is the most vulnerable group and results in death if not treated seriously. The highest incidence of diarrhea cases occurs in the first two years of life and will decrease with increasing age (World Health Organization, 2017).

The problem of diarrhea in Indonesia often occurs in the form of extraordinary events (KLB). Diarrhea Cases In 2014 there were 6 diarrhea outbreaks in 5 provinces with 2,549 sufferers and 29 deaths (CFR 1.14%), in 2015 there were 21 diarrhea outbreaks in 13 provinces with 1,213 sufferers and deaths. 30 people (CFR 2.47%), in 2016 there were 3 outbreaks of diarrhea in 3 provinces, 3 districts, with 198 sufferers and 6 deaths (CFR 3.04%), in 2017 there were 21 outbreaks of diarrhea spread over 12 provinces, 17 regencies/ cities. Polewali Mandar, Pohuwato, Central Lampung and Merauke districts each had 2 outbreaks. The number of sufferers was 1,725 and 34 people died (CFR 1.97%), in 2018 there were 10 cases of diarrhea

outbreaks in 8 provinces, 8 districts/cities. Tabanan Regency and Buru Regency each occurred 2 outbreaks. The number of sufferers was 756 people and death was 36 people (CFR 4.76%) (Kementerian Kesehatan, 2019).

Diarrheal disease is a disease whose morbidity and mortality are still high until now, this disease is still considered a health problem that has not been resolved by developing countries such as in Indonesia, on average children under 3 years of age in developing countries experience three episodes of diarrhea per year (Syah et al., 2017).

Diarrhea can cause loss of nutrition needed by children during their infancy and is the biggest cause of death among children under five in Indonesia. In Indonesia, diarrheal disease is the number two killer of children under five after acute respiratory infection (ISPA) and every year 100,000 children under five die from diarrhea. One of the factors causing diarrhea disease is improper management at home and health facilities. The results of the household health survey (SKRT) in Indonesia in the Ministry of Health of the Republic of Indonesia, diarrhea is the second leading cause of death in children under five, number three in infants and number five for all ages (Rahman et al., 2016).

Personal hygiene or personal hygiene is a person's effort to maintain their own hygiene and health in order to obtain physical and psychological well-being. The habit of not washing hands with soap after defecating is a habit that endangers toddlers, especially when they are about to eat.

Cleanliness in everyday life is very important and must be considered because cleanliness will affect one's health. Someone experiences illness, usually hygiene problems are not paid attention to, this happens because they think that personal hygiene problems are trivial problems, even though if this is allowed to affect general health, it can cause diseases such as diarrhea (Tarwoto, 2012).

Factors that increase the risk of diarrhea in children under five are environmental factors including latrines, waste management, sewage channels, and water sources. Uncovered latrines will be accessible to vectors that cause diarrhea. Improper processing of garbage and sewage can cause diarrhea in toddlers. This is because the fly vector lands on the trash or waste and then lands on the food. In addition, diarrhea can occur if someone uses water that is already polluted from the source. In addition, the habit of washing hands when cooking food or after defecating (BAB) will allow direct contamination (Widoyono, 2011).

Factors related to the incidence of diarrhea in children under five are agent, host, environment, health care and behavior factors. Host factors that cause increased vulnerability to diarrhea, including not giving exclusive breast milk (ASI), malnutrition, the emergence of hereditary infectious diseases, etc. The most dominant environmental factors are clean water facilities, the presence of vectors, waste handling, and feces disposal. These factors will interact with human behavior and the quality of health services so that they have the potential to cause diarrhea.

Theoretically, the incidence of diarrhea can be caused by environmental factors, maternal knowledge, socioeconomic factors, infectious factors, malabsorption factors, infectious factors, psychological factors and dietary factors.

Poor environmental conditions are one of the factors in increasing the incidence of diarrhea due to the health status of an environment which includes housing, sewage disposal and clean water supply. This can cause major environmental health problems because it can lead to outbreaks of diarrhea disease and affect public health conditions (Fiestai et al., 2012).

Diarrheal disease is an environmentally based disease. Several factors are related to the incidence of diarrhea, namely inadequate supply of clean water, water contaminated with feces, lack

of hygiene facilities (unhygienic disposal of feces), personal hygiene and bad environment, preparation of undercooked food and storage of cooked food at room temperature that is not should.

There are many factors that directly or indirectly drive diarrhea, namely agent, host, environment and behavior factors. Environmental factors are the most dominant factors, namely clean water supply facilities and feces disposal, these two factors interact together with human behavior. If environmental factors are not healthy because they are contaminated with diarrhea germs and accumulate with unhealthy human behavior, then diarrhea transmission can easily occur.

This study aims to determine the relationship between handwashing, fly density, and sewerage on the incidence of diarrhea in toddlers in Serdang Bedagai District in 2020.

RESEARCH METHODS

This type of research is descriptive analytical using a cross-sectional design, namely to analyze the relationship between personal hygiene and environmental sanitation with the incidence of diarrhea in which all independent variables and dependent variables were measured at the same time at the time of the study.

The population of this study was toddlers aged 12 to 59 months from fishermen families in Serdang Bedagai Regency. The respondents of this research were mothers of toddlers. The number of samples was 61 respondents.

The instruments used in this research were questionnaire and fly grill. The data obtained in this study were analyzed by bivariate analysis.

RESULT

Description of Research Location

Geography

Serdang Bedagai Regency is one of the regencies located in the East Coast Region of North Sumatra. Serdang Bedagai Regency has an area of 1,900.22 km² which is divided into 17 sub-districts with 237 villages and 6 sub-districts. Geographically, Serdang Bedagai Regency is located at the position 3˚01'2.5 "North Latitude - 3˚46'33" North Latitude and 98˚44'22 "East Longitude - 99˚19'01" East Longitude with an altitude ranging from 0 - 500 meters above sea level. Serdang Bedagai Regency in the north is bordered by the Malacca Strait, to the south with Simalungun Regency, to the east with Batu Bara Regency and Simalungun Regency, and to the west with Deli Serdang Regency. Serdang Bedagai Regency has 24 rivers where the longest rivers are the Padang and Bah Hilang rivers which are 25,000 m² each, while the Mendaris and Sei Rampah rivers are the shortest rivers, each of which is 5000 m². Serdang Bedagai Regency has a tropical climate where the climatic conditions are almost the same as Deli Serdang Regency as the main district. The average humidity per month is around 83%, rainfall ranges from 78 to 297 mm per month. The average wind speed ranges from 2.4 m/s with an evaporation rate of about 3.9 mm/day. Minimum temperature per month is 23.7 ˚ C and maximum 33.1 C.

Demographic State

The total population of Serdang Bedagai Regency in 2019 was 613,618 people, with a composition of 308,419 men and 305,199 women. So that the gender ratio is 55 per 100 female populations, meaning that for every 100 female residents there are around 55 male residents.

Environmental Conditions

Environment is one of the variables that often gets special attention in assessing public health conditions. Other variables are behavioral factors, health services and genetics, the four variables above can determine the status of public health status. To describe the condition of the environment, the following indicators will be presented, namely the percentage of healthy houses, the percentage of households that have the final means of collecting feces/defecation.

Bivariate Analysis

Bivariate analysis was carried out to analyze relationship between handwashing, fly density, and sewerage on the incidence of diarrhea in toddlers in Serdang Bedagai District in 2020

Table 1. The Relationship between Handwashing, Fly Density, and Sewerage on the Incidence of Diarrhea in Toddlers in Serdang Bedagai District in 2020

Variable	Incidence of Diarrhea						P Value
	Diarrhea		Not Diarrhea		Total		
	n	%	n	%	n	%	
Handwashing							
Yes	6	25.0%	18	75.0%	24	100%	0.001
No	27	73.0%	10	27.0%	37	100%	
Fly Density							
Middle	6	27.3%	16	72.7%	22	100%	0.002
High	27	69.2%	12	30.8	39	100%	
Sewerage							
Qualify	9	36.0%	16	64.0%	25	100%	0.018
Unqualify	24	66.7%	12	33.3%	36	100%	

The results of the bivariate analysis showed that there was a significant relationship between handwashing (p=0.001), fly density (p=0.002), sewerage (p=0.018) on the incidence of diarrhea in toddlers in Serdang Bedagai District in 2020.

CONCLUSION AND SUGGESTION

The results of the bivariate analysis showed that there was a significant relationship between handwashing (p=0.001), fly density (p=0.002), sewerage (p=0.018) on the incidence of diarrhea in toddlers in Serdang Bedagai District in 2020.

Community participation and the active role of the Serdang Bedagai District Health Office are needed in improving services and knowledge for the prevention of diarrhea disease in children under five through counseling and community empowerment.

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How to cite this article: Handayani A, Nurmaini, Marsaulina I. The relationship between handwashing, fly density, and sewerage on the incidence of diarrhea in toddlers in Serdang Bedagai District in 2020. *International Journal of Science & Healthcare Research.* 2021; 6(1): 210-214.

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