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RELATIONSHIP BETWEEN PERSONAL HYGIENE AND THE INCIDENCE OF DIARRHEA IN CHILDREN

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ABSTRACT

Diarrhea is increasing frequency of defecate as much as 3 or more in 1 day and the consistency more liquid from normal humans. Diarrhea is usually a symptom of intestinal infection, which can be caused of some bacteria, virus, parasite. The infection are disperse through contaminated food and drink, or people to people as a effect of the poor hygiene. This research study is aimed to know the correlation of incidence of diarrhea with personal hygiene in children at regional Lemong public health center in 2023. Method used on this research is quantitative method with a cross sectional study approach. The sample is determined by probably sampling and sample obtained 55 respondents. The tools used to collect data in this research is questionnaire sheet then analyzed by Chi square statistical tests. The data is analyzed with statistic software. Statistical test results found a significant correlation or relationship between incindence of diarrhea and the behavior of washing hand with soup (ρ-value =0,001), significant correlation between the incidence of diarrhea with the behavior of maintaining hand and nail hygiene (ρ-value <0,002), significant correlation between the incidence of diarrhea with defecation behavior (ρ-value <0,048). It can be concluded that personal hygiene is related to the incidence of diarrhea in regional of Lemong public health center, west coast district in 2023. So it can be concluded that personal hygiene is related to the incidence of diarrhea in regional of the Lemong Public Health Center, Pesisir Barat District in 2023.

Keywords: incidence of diarrhea; child diarrhea; personal hygine

INTRODUCTION

Infectious diseases are a public health problem that often occurs in developing countries such as Indonesia. Infectious diseases have become a global problem because they cause high rates of illness and death in a relatively short time. Infectious diseases are included in the epidemiological triangle such as *host, agent*, and *environment.* One of the infectious diseases is diarrhea. Diarrhea is one of the causes of the high rate of child illness and mortality in the world. Diarrhea is an increase in the frequency of bowel movements three or more times per day and is more liquid than the normal form in individuals. Diarrhea is usually a symptom of an infection in the intestinal tract, which can be caused by a variety of bacterial, viral, and parasitic organisms. The infection spreads through contaminated food or drinking water, or from person to person as a result of poor hygiene (WHO, 2017).

Diarrheal diseases are the second cause of death for toddlers in the world. Almost 1 in 5 child deaths of about 1.5 million each year are due to diarrhea. Diarrhea is the cause of 40% of infant deaths worldwide every year. Diarrhoea is the leading killer of children, accounting for 9% of all toddler deaths worldwide in 2015. This means that more than 1,400 children die every day, or about 526,000 children per year, despite the availability of modest effective treatments (WHO, 2015). The results of the national diarrhea morbidity survey, the incidence of diarrhea in all age groups in 2013 was 214 per 1,000 population. The Incidence Rate (IR) during 2010 – 2017 tends to fluctuate. In 2017, there were 21 outbreaks of diarrhoea spread across 12 provinces, namely West Sulawesi, Gorontalo, Lampung, East Nusa Tenggara, Maluku, Central Sulawesi, West Kalimantan, Papua,

Central Java, Jambi, Riau Islands and Bangka Belitung Islands, with a total of 1,725 patients and 34 deaths (CFR 1.97%) (Ministry of Health of the Republic of Indonesia, 2018).

Profile data from the Lampung health office in 2020, it was reported that diarrheal diseases were recorded at 133,699 cases. Of all diarrhea cases in Lampung, the five districts with the highest incidence of diarrhea are Bandar Lampung City, West Coast, East Lampung, Central Lampung and South Lampung. (Lampung Province Health Profile, 2020). The health profile data of the West Coast Health Office reports 10 infectious diseases, there has been an increase in diarrhea cases from 2020 to 2022. In 2020 the number of diarrhea cases was 560 cases, in 2021 there were 648 cases, and in 2022 there were 758 cases. The Lemong Health Center is the top five contributors to diarrhea cases in the West Coast in the last 3 years. The increase in cases is the impact of insufficient clean water needs, lack of good personal hygiene, sanitation facilities such as latrines that have not met the requirements, so that it is a trigger for diarrhea cases to increase every year. After identification by the health office and environmental health workers, the results were obtained that the main factor about the lack of monitoring of clean water quality and *personal hygiene* in children was lacking.

Personal hygiene is the hygiene and health of individuals that includes the care of the scalp and hair, eyes, nose, ears, toenails and hands, skin, and overall body care. The literature states that personal *hygiene* can prevent infectious diseases, especially diarrhea in children. Epidemiologically, the spread of diarrhea among school children is still high (Ministry of Health, 2018). The results of a pre-survey conducted by researchers on 20 children suffering from diarrhea in the work area of the Lemong Health Center, West Coast Regency in May 2023 found that the main factors causing children to suffer from diarrhea were due to *poor personal hygiene*, including poor bowel movements (BAB), Hand Washing with Soap (CTPS) who still did not use soap, as well as a lack of maintaining hand and nail hygiene which can be the transmission of bacteria transfer into the body. The purpose of this study is to determine the relationship between Personal Hygiene and the incidence of diarrhea in children in the Working Area of the Lemong Health Center, West Coast Regency in 2023.

METHOD

The type of research is quantitative analytical design with *a cross sectional approach.* This research was carried out in June 2023 at the Lemong Health Center, Lemong District, West Coast Regency. The population in this study is all children aged 5-11 years with diarrhea patients in the vulnerable time period of January 2023 - May 2023, which is 121 children. The sample in this study was 55 children with probability *sampling* where sampling that did not provide the same opportunity or opportunity for population members to be selected as samples. With the following criteria: The criteria for sample inclusion in this study are as follows: Diarrhea patients who are willing to be respondents, patients with diarrhea aged 5 - 11 years, patients with diarrhea in the period January-May 2023. The sample exclusion criteria in this study are as follows: Diarrhoea patients who do not suffer from diarrhea, patients with diarrhea with the last treatment period are not vulnerable in the time period of January - May 2023, diarrhea patients who are not children. Data collection using questionnaires and observation sheets. Data processing analysis is *editing*, *coding*, *processing* and *clening.* The research analysis includes *univariate* and *bivariate.* Bivariate analysis using *the chi square test* correlates 2 variables, namely independent and dependent variables.

RESULT AND DISCUSSION

Table 1.
Distribution of diarrhea frequency among children

	f	%
Diarrhea	55	100

Based on table 4.1, the results of the univariate analysis of the distribution of diarrhea sufferers in the children above can be seen that the total diarrhea is 100%, this is because the sample refers to all patients who have suffered from diarrhea.

Tabel 2.
Distribution of frequency of handwashing behavior with soap

	f	%	Valid Percent	Cumulative Percent
Bad	29	52.7	52.7	52.7
Not Good	16	29.1	29.1	81.8
Good	4	7.3	7.3	89.1
Quite	3	5.5	5.5	94.5
Excellent	3	5.5	5.5	100.0

Based on table 2, the results of the univariate analysis on the frequency distribution of children who wash their hands with soap are not good for 29 respondents (52.7%), poor for 16 respondents (29.1), good for 4 respondents (7.3%), good for 3 respondents (5.5%), very good for 3 respondents (5.5%).

Table 3.
Distribution of the frequency of Hand and Nail Hygiene Behavior

	f	%	Valid Percent	Cumulative Percent
Bad	33	60.0	60.0	60.0
Not good	12	21.8	21.8	81.8
Quite	4	7.3	7.3	89.1
Good	3	5.5	5.5	94.5
Excellent	3	5.5	5.5	100.0

Based on table 3, the results of the univariate analysis of the frequency distribution of bad hand and nail hygiene behavior were 33 respondents (60.0%), 12 respondents (21.8%) were not good, 4 respondents (7.3%) were moderately good, 3 respondents were good (5.5%), and 3 respondents were very good (5.5%).

Table 4
Distribution of the frequency of defecation behavior

		Bowel Movements			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bad	28	50.9	50.9	50.9
	Not Good	21	38.2	38.2	89.1
	Quite	2	3.6	3.6	92.7
	Good	2	3.6	3.6	96.4
	Excellent	2	3.6	3.6	100.0

Based on table 4, the results of univariate analysis on the frequency distribution of defecation behavior were not good for 28 respondents (50.9%), poor for 21 respondents (38.2%), good for 2 respondents (3.6%), good for 2 respondents (3.6%), and very good for 2 respondents (3.6%).

Table 5

The Relationship between Handwashing Behavior and the Incidence of Diarrhea in Children

Diarhea Incident	Behavior of washing hands with soap												*ρ-value*
	Bad		Not Good		Good		Quite		Excellent		Total		
	f	%	f	%	f	%	f	%	f	%	f	%	
Diarhea	29	52,7	16	29,1	4	7,2	3	5,4	3	5,4	55	100	0,001
Total	29	52,7	16	29,1	4	7,2	3	5,4	3	5,4	55	100	

Based on table 5, the results of the *Chi Squere test* on the relationship between hand washing behavior with soap and the incidence of diarrhea were obtained *with a value of* $\rho = 0.001$ or $\rho < 0.05$), meaning that there is a relationship between hand washing behavior and the incidence of diarrhea in children. So that the X and Y variables have a correlation with the degree of strong correlation and the form of the relationship is positive.

Table 6

The Relationship between Hand and Nail Hygiene Behavior and the Incidence of Diarrhea in Children

Diarhea incident	Behavior of maintaining hand and Nail Hygiene												*ρ-value*
	Bad		Not Good		Good		Quite		Excellent		Total		
	f	%	f	%	f	%	f	%	f	%		%	
Diarhea	33	60	12	21,8	4	7,2	3	5,4	3	5,4	55	100	0,002
Total	33	60	12	21,8	4	7,2	3	5,4	3	5,4	55	100	

Based on table 6, the results of the *Chi Squere test* on the relationship between hand and nail hygiene behavior and the incidence of diarrhea were obtained with *a value of* $\rho = 0.002$ or $\rho < 0.05$), meaning that there is a relationship between hand and nail hygiene behavior and the incidence of diarrhea in children. So that the X and Y variables have a correlation with the degree of strong correlation and the form of the relationship is positive.

Table 7

The Relationship between Defecation Behavior and the Incidence of Diarrhea in Children

Diarhea incident	Bowel beahviour												*ρ-value*
	Bad		Not good		Good		Quite		Excellent		Total		
	f	%	f	%	f	%	f	%	f	%	f	%	
Diarhea	28	50,9	21	38,2	2	3,6	2	3,6	2	3,6	55	100	0,048

Based on table 7, the results of the *Chi Squere test* on the relationship between defecation behavior and the incidence of diarrhea were obtained *with a value of* $\rho = 0.048$ or *$\rho<0.05$), meaning that there is a relationship between defecation behavior and the incidence of diarrhea in children. So that the X and Y variables have a correlation with the degree of strong correlation and the form of the relationship is positive.*

The Relationship Between Hand Washing with Soap (CTPS) and the Incidence of Diarrhea in Children

The results of data analysis showed that there was a significant relationship between hand washing habits with soap and the incidence of diarrhea, namely *ρ-value = 0.001, so the* direction of the relationship between hand washing habits with soap and the incidence of diarrhea was positive. This result has the suitability that Hand Washing Habits with Soap. Washing hands with soap is a

healthy behavior that is very effective to prevent the spread of various infectious diseases such as diarrhea. Hand washing is often considered a trivial thing in society, even though hand washing can contribute to improving the health status of the community. School-age children have a habit of not paying attention to the need to wash their hands in their daily lives, especially when in the school environment. This behavior is certainly influential and can contribute to the occurrence of diarrheal diseases.

This research is in line with the research conducted by Utomo et al. (2013) on school-age children at SDN 02 Pelemseri, Todanan District, Blora Regency, it is known that most of them have experienced diarrhea in the last 3 months, namely as many as 48 respondents out of a total of 72 respondents. Based on the results of the statistical test using *Chi-Square* , a *ρ-value* of 0.008 (*ρ< 0.05) was obtained, which means that there is a significant relationship between hand washing behavior with soap and the incidence of diarrhea in school-age children at SDN 02 Pelemssir, Todanan District, Blora Regency. The results of this research* are inversely proportional to the research conducted by Manyullei et al. (2018) on factors related to diarrhea in toddlers in the working area of the Pampang Health Center in Makassar City, obtained the result $\rho = 0.11$ ($\rho > 0.05$) so that it can be concluded that there is no significant correlation or relationship between washing hands with soap and the incidence of diarrhea. Research conducted by Djarkoni et al. (2014) on the relationship between hand washing behavior with soap and the incidence of diarrhea at SD Adventist Sario Manado City, the results of the analysis of the correlation calculation using chi squared are $\alpha=0.05$ ($\rho < \alpha$) this means that there is a relationship between hand washing behavior with soap and the incidence of diarrhea. Based on the results of the study on 31 child respondents, there were 90.3% of children who had good behavior in washing their hands with soap and 9.7% of children who had bad behavior in washing their hands with soap. The habit of washing hands with soap should be habituated from school age because washing hands with soap correctly can reduce the incidence of diarrhea by up to 45%. There is a relationship between Hand Washing with Soap and the incidence of diarrhea, so there needs to be counseling for parents and people with diarrhea, this aims to change behavior and increase knowledge so that it can reduce the incidence of diarrhea.

The Relationship between Defecation Behavior and the Incidence of Diarrhea in Children

The results of the study were obtained that of the 55 respondents studied, there were 28 (50.9%) respondents who had bad bowel habits. The result of the *chi-squere* test of bowel habits was 0.02 (*0.02<0.05*) so the interpretation was that bowel habits had a significant relationship with the incidence of diarrhea. Random Defecation Behavior or also known as *open defecation free* is one of the unhealthy lifestyle behaviors. Careless defecation is the behavior or act of throwing feces or human feces in open places such as in rice fields, bushes, rivers, beaches, forests, and other open areas and allowed to spread contaminating the environment, soil, air, and water. Random Defecation is a behavior that is not good for health because it can cause diseases such as diarrhea (Sukma, 2018). The results of this study are in line with the research conducted by Winarti and Nurmalasari (2016) on the relationship between bowel movements and the incidence of diarrhea, the results were obtained that, of the 98 respondents studied, 20.4% of respondents who had bad bowel movements experienced diarrhea and 16.3% of well-behaved respondents experienced diarrhea. Based on the chi square statistical test with a value *of $\rho = 0.002$ ($\rho< 0.05$), the results were obtained that there was a relationship between defecation behavior and the incidence of diarrhea in Krajan Village.* Another study conducted by Dista et al. (2018) on the relationship

between defecation behavior and the incidence of diarrhea in the working area of the Ngulankulon Health Center, Pogalan District, obtained the results of the statistical test through the chi square test is $\rho = 0.00 < \alpha = 0.05$ which means that there is a relationship between community defecation behavior and diarrhea cases. Household access to latrine facilities shows a significant association with diarrheal morbidity. The habit of defecating in this study was carried out by means of an interview using a questionnaire containing questions related to toilet ownership, where to defecate, clean water facilities and toilet cleanliness.

The Relationship between Hand and Nail Hygiene Behavior and the Incidence of Diarrhea in Children

The results of the study can be seen that *ρ-value = 0.048* (0.048<0.05) so that it can be interpreted that the relationship between hand and nail hygiene and the incidence of diarrhea is significant. The direction of the relationship between hand and nail hygiene and the incidence of diarrhea is positive, which means that the higher the hand and nail hygiene score, the higher the diarrhea incidence score or vice versa. The main impact if the nails are not clean and long nails will have a lot of jaiter seeds, especially diarrhea and worms. Unknowingly, bacteria and germs will nest long claws when students play at school. (Abiyoga et al., 2017). Bad bacteria and germs on the nails will also enter the body when eating. During eating, germs and bacteria take refuge in the nails and will move into the food. These microorganisms will have a negative impact on health and cause disorders in the digestive system (Siswanto, 2010). There is another study that is in line with Indriani & Faried (2018) obtained the results of data analysis conducted with *the Chi Square* Test showing that *ρ-value* = 0.002 ($p < 0.05$) which means that statistically there is a meaningful relationship between cutting fingernails and the incidence of diarrhea in grade IX students at SMPN 36 Samarinda Seberang. There is a relationship between maintaining hand hygiene and nails so parents must also participate in the habit of cutting nails in elementary school children because not all children can cut their own nails. Nails can be a place for dirt to settle and carry a lot of germs and bacteria**.**

CONCLUSION

There is a Relationship between Hand Washing Behavior with Soap and the Incidence of Diarrhea in the Working Area of the Lemong Health Center, West Coast Regency (*ρ-value =0.001)*. There is a Relationship between Behavior of Maintaining Hand and Nail Hygiene and the Incidence of Diarrhea in the Working Area of the Lemong Health Center, West Coast Regency (*ρ-value* ≤0.002). There is a Relationship between Defecation Behavior and the Incidence of Diarrhea in the Working Area of the Lemong Health Center, West Coast Regency (*ρ-value* ≤0.048).

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