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The relationship between a healthy lifestyle and diarrheal disease among children in the penanae health center workplace

Tri Yubiah[a,1,*], Nurbaety[b,2], Irawati[c,3]

[a,b,c]AKBID Harapan Bunda Bima, Jl. Imam Bonjol No.56 Santi Barat Kota Bima-NTB and 84151, Indonesia
[1]triyubiah9691@gmail.com*; [2] mama.el14@yahoo.co.id; [3] irawati.2021bima@gmail.com
* corresponding author

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ABSTRACT

Diarrheal disease is a global problem that has become the second leading cause of death in children under five years old. Diarrhea can last for several days. Diarrhea deaths are mainly caused by dehydration due to fluid and electrolytes loss through feces. This study investigates the relationship between a healthy lifestyle and diarrheal disease among 1-5 years children in the Penanae Health Center workplace. This research used a quantitative analytical descriptive method with a cross-sectional approach. The populations were the 110 mothers with children who experienced diarrhea in January-August, while the numbers of samples taken were 52 samples. Based on the results of Clean and Healty Living Behaviour (CHLB) data recorded 52 respondents, including 31 mothers who gave exclusive breastfeeding (59.61%) and 21 mothers who did not give exclusive breastfeeding (40.38%). The CHLB data also recorded that the 30 respondents used clean water (55,76%), while 22 respondents did not use clean water (44.23%). Moreover, there were 19 respondents had handwashing behavior (36.53), while the other 33 respondents did not have handwashing behavior (63.46%). Lastly, the data shows that 34 respondents used hygienic toilets (65.38%), while 18 respondents did not use hygienic toilets (34.61%).

1. Background

According to the World Health Organization (WHO), diarrheal disease is the second leading cause of death in children under five years old. Diarrhea can last for several days. Diarrhea deaths are mainly caused by dehydration due to loss of fluid and electrolytes through feces. The majority of diarrhea-related deaths in children under the age of five are caused by severe dehydration (WHO, 2012a).

Diarrhea is a global problem with relatively high morbidity and mortality rates, especially in developing countries. It is one of the leading causes of high child morbidity and mortality globally (Health, 2015; Health, 2017). It is estimated that 10 million children under five years die every year, and around 20% of them are due to diarrhea (Mousavi et al., 2007).

According to the characteristics, the prevalence of diarrhea in Indonesia recorded that 18,225 (9%) children with diarrhea were in the age group of < 1 year; 73,188 (11.5%) children were in the age group of 1-4 years; 182,338 (6.2%) children were in the age group of 5-14 years; and 165,644 (6.7%) children were in the age group of 15-24 years (Ministry of Health, 2019). According to the West Nusa Tenggara Province Profile Data, the cases of diarrhea disease in 2016 had reached 11,877 patients, and it increased to 22,699 cases in 2017. It means that there was an increase of 91.08% of diarrhea cases in District/Bota in NTB Province. As a result, diarrhea is a potentially lethal and hazardous condition resulting in death and other unpleasant outcomes (Office, 2019).

Based on the data obtained from the Bima City Health Office, the high incidence of diarrhea in toddlers in 2019 had reached 1,830 patients, and in 2020 the incidence of diarrhea decreased to 1,855 toddlers (Aminah et al., 2013; Anggreli, 2015). Based on data obtained from the Bima City Health Office taken from the Penanae Health Center, the highest incidence of diarrhea in 2019 was 517

children under five years old. In 2020, it increased to 545 children, while from January to August 2021, 110 toddlers also reported having diarrhea disease (Dewi, 2012).

Clinical causes of diarrhea can be classified into six groups: infection, malabsorption, allergies, poisoning, immunodeficiency, and other general causes of diarrhea; including the inadequate supply of clean water, feces-contaminated water, insufficient hygiene facilities, unsanitary waste disposal sites, the practice of not washing both hands before and after activities, and poor food hygiene (Hadi, 2013; Juffric, 2015). Another cause of diarrhea is the lack of the mothers' knowledge about Clean and Healthy Living Behavior (Amen & Lukman, 2015).

Maternal factors also play a role in the incidence of diarrhea in toddlers. When a child has diarrhea, the mother's actions will determine how the disease will lead (Sartika et al., 2021). These actions are influenced by various things, one of which is knowledge (Juffric, 2015).

Diarrhea in toddlers can cause them to be unhappy, vomit, have a fever, suffer from severe dehydration, have stunted growth, and even die from a lack of water and salt in the body. One of the efforts to handle this problem is increasing the mother's knowledge on handling diarrhea in toddlers through health education or health promotion (Kosashi, 2015; Maulida et al., 2013). Health promotion or health education can make someone aware of providing and expanding knowledge in the health sector and an effort that can change a person's behavior and change a person's attitude towards a particular thing (Aryana et al., 2014).

Some efforts that mothers can make in handling diarrhea include providing first aid by giving homemade ORS with a mixture of salt solution and giving guava leaves to the child. The guava leaves can be given directly to the child to chew instantly or boil to make an infused guava leaf. However, if diarrhea becomes more severe, the child should be sent to the midwife or the nearest health center for further treatment and care (Anik, 2013; Banun, 2016).

Healthcare professionals' efforts to prevent and control diarrhea cases are by giving ORS, infusions, and outreach to the community to increase clean and healthy living behavior since the diarrheal disease is highly related to sanitation hygiene and clean and healthy living behavior (Health, 2017).

Based on some of the data obtained above, the researchers are interested in conducting a study titled 'The Relationship between A Healthy Lifestyle and Diarrheal Disease among Children in the Penanae Health Center Workplace'. This study aims to explore the relationship between a healthy lifestyle and diarrhea in children ranging from age 1 to 5 in the working area of the Penanae Health Center (Ariani, 2016; Dewi, 2012).

2. Research Methods

This research used a quantitative correlational method, with a healthy lifestyle as the independent variable and diarrhea disease among children under five years old as the dependent variable (Diana et al., 2014; Ermawati et al., 2012). This research explored the relationship between a healthy lifestyle and diarrhea incidence among children. A descriptive quantitative design with a cross-sectional approach was used for the study (Diana et al., 2014).

The population in this study were all mothers who had toddlers between 1 to 5 years old who experienced diarrhea, and the number taken was 110 children (Ragil & Dyah, 2017). The sample is part of the population's number and characteristics, and the number obtained in this study was 52 samples. The sampling technique used in this study is simple random sampling, commonly referred to as a simple random technique (Jiu & Rungreangkulkij, 2019). The data was collected using observation and documentation methods to obtain the healthy lifestyle data, while the data on diarrhea incidence was obtained from health center medical records (Soetijiningsih, 2012). In order to collect the healthy lifestyle data, some questionnaires were distributed, including information about exclusive breastfeeding, use of clean water, handwashing behavior, and the usage of clean toilets (Ermawati et al., 2012). This study used univariate and bivariate data analysis with a 0.05 p-value.

3. Results of The Study

3.1. Univariant Analysis

Table 1 descibes the respondents' frequency distribution based on the exclusive breastfeeding factor.

Table 1. The respondents' frequency distribution based on the exclusive breastfeeding factor.

Exclusive Breastfeeding	Frequency	Percentage (%)
Exclusive Breastfeeding	31	59,61%
Non-Exclusive Breastfeeding	21	40,38%
Total	**52**	**99,99%**

Based on the distribution of respondents' exclusive breastfeeding data, 31 respondents (59.61%) did not give exclusive breastfeeding, and 21 respondents (40.38%) gave exclusive breastfeeding to their children. The following is the chi-square test result between exclusive breastfeeding and diarrhea disease, in which the value = 0.000 (<0.05), meaning that there is a relationship between exclusive breastfeeding as a part of CHLB and diarrhea incidence in toddlers.

The Table 2 explains the respondents' frequency distribution based on the use of the clean water factor.

Table 2. The respondents' frequency distribution based on the use of the clean water factor

Use of clean water	Frequency	Percentage (%)
Using clean water	30	55,76%
Not using clean water	22	44,23%
Total	**52**	**99,99%**

Based on the distribution of respondents' usage of clean water, 30 respondents (55,76%) typically used clean water, and 22 respondents (44.23%) did not use clean water. The following is the chi-square test result between the use of clean water and diarrhea, in which the value = 0.000 (> 0.05). It means that there is a relationship between the use of clean water as a part of CHLB and diarrhea incidence in toddlers. Whilst, the respondents' frequency distribution based on the handwashing behavior factor is described in Table 3.

Table 3. The respondents' frequency distribution based on the handwashing behavior factor

Handwashing behavior	Frequency	Percentage (%)
Has handwashing behavior	19	36,53%
Does not have handwashing behavior	33	63,46%
Total	**52**	**99,99%**

Based on respondents' handwashing behavior distribution, 19 respondents (36,53%) typically have handwashing behavior, while 33 respondents (63.46%) did not have handwashing behavior. The following is the chi-square test result between handwashing behavior and diarrhea, in which the value = 0.000 (<0.05). It means that there is a relationship between handwashing behavior as a part of CHLB and diarrhea incidence in toddlers.

The respondents' frequency distribution based on the use of the hygienic toilets factor is stated in Table 4.

Table 4. The respondents' frequency distribution based on the use of the hygienic toilets factor

Hygienic toilets usage	Frequency	Percentage (%)
Using hygienic toilets	34	65,38%
Not using hygienic toilets	18	34,61%
Total	**52**	**99,99%**

Based on respondents' use of hygienic toilets distribution, 34 respondents (65.38%) used hygienic toilets, while the other 18 respondents (34.61%) did not use the hygienic toilet. The following is the chi-square test result between hygienic toilet usage and diarrhea, in which the value = 0.000 (<0.05). It means that there is a relationship between the use of the hygienic toilet as a part of CHLB and diarrhea incidence in toddlers.

3.2. Bivariate Analysis

The relationship between a healthy lifestyle and the diarrhea incidence in toddlers using the chi-square test can be seen as follows:

Table 5. Cross-Tabulation of the Relationship of Exclusive Breastfeeding with the incidence of diarrhea

Exclusive Breastfeeding	Incidence of Diarrhea		Total	P-Value
	Diarrhea	*No Diarrhea*		
Exclusive Breastfeeding	5	26	31	
Non-Exclusive Breastfeeding	17	4	21	0,000
Total	**22**	**30**	**52**	

The following is the chi-square test result between exclusive breastfeeding and diarrhea disease, in which the value = 0.000 (<0.05). It means that there is a relationship between exclusive breastfeeding as a part of CHLB and diarrhea incidence in toddlers.

Table 6. Cross-tabulation of the relationship between using clean water and the incidence of diarrhea

Use of clean water	Incidence of Diarrhea		total	P-Value
	Diarrhea	*No Diarrhea*		
Use clean water	7	23	30	
Do not use clean water	15	7	22	0,001
Total	**22**	**30**	**52**	

The following is the chi-square test result between the use of clean water and diarrhea, in which the value = 0.000 (>0.05). It means that there is a relationship between the use of clean water as a part of CHLB and diarrhea incidence in toddlers.

Table 7. Cross tabulation on the relationship between hand washing and the incidence of diarrhea

Washing hands behavior	Diarrhea Incidence		total	P-Value
	Diarrhea	*No Diarrhea*		
Has washing hands behavior	2	17	19	
Do not have washing hands behavior	20	13	33	0,000
Total	**22**	**30**	**52**	

The following is the chi-square test result between handwashing behavior and diarrhea, in which the value = 0.000 (<0.05). It means that there is a relationship between handwashing behavior as a part of CHLB and diarrhea incidence in toddlers.

Table 8. Cross-tabulation on the relationship between the use of hygienic toilets and the incidence of diarrhea

The use of hygienic toilets	Diarrhea Incidence		Total	P-Value
	Diarrhea	*No Diarrhea*		
Use hygienic toilets	6	28	34	
Not using hygienic toilets	16	2	18	0,000
Total	**22**	**30**	**52**	

The following is the chi-square test result between hygienic toilet usage and diarrhea, in which the value = 0.000 (<0.05). It means that there is a relationship between the use of the hygienic toilet as a part of CHLB and diarrhea incidence in toddlers.

4. Discussion

1) Discussion on the relationship between exclusive breastfeeding and diarrheal disease in children

Based on the cross-tabulation results with 52 mothers as the respondents, 31 mothers (59.61%) gave exclusive breastfeeding, which resulted in five of their children having diarrhea and the other 26 did not. Moreover, 21 mothers who did not give exclusive breastfeeding (40.38%) resulted in 17 toddlers experiencing diarrhea, while four others did not. This cross-tabulation test revealed that exclusively breastfed infants were less likely to have diarrhea than moms who did not nurse exclusively (Ervinda, 2014; Hadi, 2013; Maryunani, 2013). Thus, mothers who have toddlers should

pay attention to providing exclusive breastfeeding to their children since it is closely related to diarrhea disease in toddlers.

2) Discussion on the relationship between the use of clean water and diarrheal disease in toddlers

Among 52 respondents with diarrhea, 30 respondents (55.76%) reported using clean water, and seven of their children experienced diarrhea. In contrast, 22 respondents (44.23%) did not use clean water, and the number who did not experience diarrhea were seven toddlers, while the other 15 toddlers had diarrhea.

Using clean water is an essential daily need. Clean water typically does not have to be physically clear or colorless. However, it must be free from sand, dust, mud, waste, foam, and other impurities. The water must be tasteless, free from salty, sour, brackish, or even bitter tastes, and free from toxic chemicals. The other characteristic of clean water is that it needs to be odorless, whether fishy, rancid, rotten, or sulfuric odors (Pratiwi, 2015).

3) Discussion on the relationship between handwashing behavior and diarrheal disease in toddlers

Based on the cross-tabulation results, two out of 19 respondents (36.53%) who have handwashing behavior experienced diarrhea, while the other 17 toddlers did not. In addition, there were also 33 respondents (63,46%) who did not have a habit of washing hands, of which 20 toddlers among them had diarrhea, while the other 13 toddlers did not experience diarrhea (WHO, 2012b; WHO, 2012a).

Hand washing is the act of cleaning hands with or without water, other liquids, and soap to wash hands from dirt and microorganisms (Sitinjak et al., 2011). Handwashing aims to clean hands from pathogens (including bacteria and viruses) and chemical substances that can be harmful and threaten health, which is also related to diarrhea incidence in toddlers. Washing hands should be done before preparing food and drinks. Furthermore, washing hands using soap is essential, especially after going to the toilets, since soap can clean dirt and kill germs (Rahayu, 2018).

4) Discussion on the relationship between a healthy lifestyle using hygienic toilets and diarrheal disease in toddlers

Based on the data of 52 respondents, 34 respondents (65.38%) reportedly used hygienic toilets. Specifically, six of their children experienced diarrhea, while the other 26 toddlers did not. Moreover, among 18 respondents (34,61%) who did not use hygienic toilets, it is known that 16 toddlers have diarrhea and two other toddlers did not. In this case, using a hygienic toilet in a household or family is an essential need, which can be done by using a latrine/WC with a septic tank for the final disposal (Nursalam et al., 2016; Sukardi et al., 2013).

The use of latrines will be beneficial to keep the environment clean, healthy and odorless. The latrines prevent contamination of the surrounding water sources. In addition, hygienic toilets also have some requirements. Toilets must be free of contaminated water sources, odorless, simple to clean, and equipped with enough lighting and ventilation. The use of hygienic toilets is also closely related to diarrhea incidence in toddlers.

5. Conclusion

Based on the research results and discussion on the relationship between a healthy lifestyle and diarrhea disease, it can be concluded that there is a relationship between a healthy lifestyle and diarrheal disease among children in the Penanae Health Center workplace.

Suggestion

a. For Educational Institutions

b. It is expected that the institute will increase knowledge regarding the relationship between CHLB and the subsequent incidence

c. For Health Service

d. It is expected that health care providers will be able to use their role as educators to teach mothers about Clean and Healthy Life Behavior concerning the occurrence of diarrhea in toddlers so that mothers can reduce the occurrence of diarrhea.

e. For Researchers

f. The findings revealed a link between CHLB and diarrhea in children under the age of five, indicating the necessity for more research on the topic.

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