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ANALYSIS FACTORS RELATED TO THE INCIDENCE OF DIARRHEA IN TODDLERS IN THE UPTD AREA OF THE EAST MARTAPURA HEALTH CENTER, BANJAR REGENCY

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KEYWORDS
diarrhea, toddlers, soap, latrines, garbage.

ABSTRACT

Diarrhea is a disease that causes discharge of feces more than 3 times with a liquid consistency, which may be accompanied by blood or mucus, and the frequency is more frequent than normal (WHO, 2019). According to WHO and UNICEF, there are around 2 billion cases of diarrhea and 1.9 million children under five die from diarrhea worldwide every year. The 2018 Basic Health Research stated that the prevalence of diarrhea for all age groups was 8% and the prevalence rate for toddlers was 12.3%, while for infants, the prevalence of diarrhea was 10.6%. The aim of the study was to analyze the relationship between Hand Washing with Soap (CTPS), Latrine Ownership, Garbage Securing and Diarrhea in the UPTD of the East Martapura Health Center. The method used is Quantitative, the research was conducted using a Cross Sectional study design, with a total sample of 89. The instruments used were questionnaires and observation sheets. Dependent variable: Incidence of diarrhea in toddlers, independent variables: hand washing with soap, toilet ownership, and waste management. The results of the study showed that there was a relationship between washing hands with soap (p=0.000), toilet ownership (p=0.000) and the incidence of diarrhea in toddlers. There is no relationship between waste management (p=0.065) and the incidence of diarrhea in toddlers in East Martapura. The most influential variable on the incidence of diarrhea among toddlers in East Martapura was latrine ownership (p=0.000 Exp (B) = 10.496).

INTRODUCTION

Diarrhea is a disease that causes the discharge of feces more than 3 times with a liquid consistency can be accompanied by blood or lenders and the frequency is more frequent than normal conditions. According to WHO and UNICEF, there are approximately 2 billion cases of diarrhea and 1.9 million children under five die from diarrhea worldwide each year (Organization, 2009). Of all these deaths, 78% occurred in developing countries, mainly in Africa and Southeast Asia. Basic Health Research in 2018 stated the prevalence of diarrhea for all age groups at 8% and the prevalence rate for toddlers at 12.3%, while in infants, the prevalence of diarrhea was 10.6% [1]. The Ministry of Health in 2019 noted that the leading cause of death in toddlers (aged 12-59 months) in Indonesia is diarrhea (RI, 2019). Diarrhea

in Indonesia in 2018 showed a total of 4,165,789 diarrhea sufferers served in health facilities. In 2018 there were 1,516,438 (37.88) diarrhea incidence in toddlers, and increased in 2019 the incidence of diarrhea in toddlers to 1,591,944 (40%) diarrhea incidence and recorded 314 deaths of toddlers due to diarrhea (RI, 2018).

Based on data from the South Kalimantan Provincial Health Office as of January 23, 2022, it released the incidence of diarrhea for 2020 in South Kalimantan of 35,092 cases obtained from 13 regencies and cities in South Kalimantan Province. The highest incidence of diarrhea is in Banjar Regency in the first place as many as 5516 cases. In 2020, the incidence of diarrhea in Banjar Regency occurred more at the age of toddlers 12-59 months, which was 2,906 cases, or around 52.67% of diarrhea cases of all ages. In 2022, the incidence of diarrhea in toddlers in Banjar Regency tends to increase to 4,056 events, or around 53.90% of the 7,524 targets for finding cases under five in Banjar Regency (Sopiyudin, 2014).

In 2022, UPTD Puskesmas Martapura Timur is in the first place in the incidence of diarrhea in toddlers, recorded from 2,295 children under five in East Martapura, there was diarrhea as many as 159 toddlers or 41.09% of the target of finding cases of 387 toddlers and in 2022 there were two deaths of toddlers due to diarrhea. In the second place, in the UPTD Puskesmas Sungai Tabuk 3 area, out of 1,836 toddlers, 115 diarrhea occurred in toddlers or 37.15% of the target of finding 310 cases under five. And in the third place in the UPTD Martapura 1 Health Center, with a total of 6,894 toddlers, diarrhea occurred as many as 102 cases or 8.78% of the target of finding cases of 1,162 toddlers. Based on data from the East Martapura Health Center in 2022 (Simatupang, 2022). Based on data from the East Martapura Health Center in 2022 (Simatupang, 2022). Based on the data obtained, the classification that is often experienced by toddlers in the East Martapura Health Center area is acute diarrhea that lasts less than 14 days (Endra, 2015). Acute disease is a disease of short duration, which is less than 6 months. Acute illness is a mild or possibly serious illness (Kemenkes, 2011).

Based on data obtained in the East Martapura Health Center area, in general, community-based total sanitation in the area is not one hundred percent (Watulingas, 2021). Based on riskesdas data in 2021, the percentage of families with access to proper sanitation in the Banjar Regency area is 83.1% (Eldysta, 2022). Data for 2022 in the working area of the East Martapura Village Health Center that implements community-based total sanitation in the village category to stop open defecation is at a percentage of 74.19% of 9,479 households that have access to proper sanitation (healthy latrines) (Eldysta, 2022). This will be a health problem if a number of heads of families do not have permanent latrines and carry out defecation activities in the open or anywhere (Dewi, 2020). According to the Ministry of Health in 2011, diarrheal disease is an environment-based disease whose main factor of water or fecal contamination accumulates with unhealthy human behavior (Carles, Amrivo V, 2017).

Waste security in the East Martapura Health Center area Based on information from health officers from the environmental health department of the East Martapura Health Center, not all residents dispose of waste by subscribing to the garbage collection officer. Some residents still manage waste by burning, throwing garbage in rivers and throwing their own garbage into garbage shelters (Budiarto, 2019). Poor waste security can have an impact on health (Tuang, 2021). If the waste is not managed properly, the presence of the waste can

invite flies (Aisyah, 2021). The results of this study are in line with the opinion expressed by (Carles, Amrivo V, 2017) who said poor waste management behavior will cause waste to become a breeding ground for disease vectors such as flies. Flies like damp and foul-smelling places such as temporary shelters, foul odors that are in the trash, likely caused by organic waste, such as fish pieces and inorganic waste collected in the same dump (Carles, Amrivo V, 2017).

UPTD Puskesmas Martapura Timur is located in Banjar Regency, South Kalimantan. UPTD Puskesmas Martapura Timur has 20 villages/villages. The total number of toddlers aged 12-59 months in 2023 is 2,178 toddlers. From the background above, there are several problems to be studied related to the relationship between the incidence of diarrhea in toddlers., to prove this, it is necessary to conduct research on the analysis of factors related to diarrhea in toddlers in the UPTD Puskesmas Martapura Timur Banjar Regency (Sopiyudin, 2014).

The main objective of this study was to identify and analyze risk factors associated with the incidence of diarrhea in toddlers in UPTD East Martapura Health Center Area. This study aims to explain how factors such as nutritional status, diet, vaccination, and environmental sanitation can affect the incidence rate of diarrhea in this age group (Nisa et al., 2023).

The theoretical framework in this study uses theories from John Gordon (1950) and theories from (Sumampouw, 2017) which mention various factors associated with the incidence of diarrhea in toddlers.

METHOD RESEARCH

This type of research is quantitative research, research is carried out using a cross sectional study design. The use of cross sectional study design because in this study design all variables are measured and observed at the same time. Researchers can collect all variables at once at the same time. Several results can be researched at once. Prevalence for all factors can be measured.

The research site was chosen, namely the UPTD Working Area, East Martapura Health Center in Banjar Regency, South Kalimantan. The choice of location is based on several considerations, based on riskesdas data in 2020, the highest incidence of diarrhea in South Kalimantan Province is in Banjar Regency, and based on data obtained at the UPTD East Martapura Health Center, the incidence of diarrhea in 2022 is mostly experienced by the toddler age group. Data from UPTD Puskesmas Martapura Timur illustrates several problems related to the incidence of diarrhea in toddlers. The research time is March-July 2023.

The population in this study was mothers who had children under five aged 1-5 years in the Working Area of UPTD Puskesmas Martapura Timur, which was 2,178 mothers. The sample size in this study uses the formula (Lemeshow, 1991), namely:

$$n = \frac{Z^2_{1-a/2} P (1-P}{}$$

The sampling technique used in this study is *Purposive Sampling*, which is research determined by certain criteria set based on the research objectives. Inclusion criteria, namely

mothers who have toddlers, live in the puskesmas area to be studied, mothers are in good health and actively communicate and are willing to be research respondents. Exclusion criteria, namely moving addresses outside the research area and not willing to be respondents.

The research instrument used questionnaires made by researchers and secondary data obtained from the East Martapura Health Center. The variables that used the questionnaire were hand washing with soap with 8 questions, while the secondary data were variables of diarrhea incidence, latrine ownership and garbage security. Primary data were obtained by filling out respondent identity data collection sheets, questionnaire sheets, and also conducted direct interviews with mothers who have toddlers with diarrhea in the East Martapura health center area. Secondary data in this study were obtained from data from the kertak hanyar health center in 2022 and 2023, data from the Riskesdas of South Kalimantan province in 2020 regarding diarrhea in South Kalimantan and from journals related to several variables in this study.

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RESULTS AND DISCUSSION

Descriptive Analysis of Respondent Characteristics

Descriptive analysis of respondents is describing respondents into several characteristics of respondents.

Tabel 1
Analisis Deskriptif Karakteristik Responden

Variabel	Frekuensi (n=89)	Persentase (%)
Education		
- No School		
- SD		
- SMP	5	5,6
- SMA	29	32,6
- Perguruan Tinggi	55	61,8
Age of Toddler		
- Under 1 year old	2	2,2
- 1-2 years		
- 2-3 years	13	14,6
- 3-4 years		
- 4-5 years	42	47,2

Variabel	Frekuensi (n=89)	Persentase (%)
	26	29,2
	6	6,7

Source. Research Processed Data, 2023

Based on the table, it is known that the age of respondents is mostly toddlers in the range between 2-3 years as much as 47.2%, and respondents' education is mostly at the high school education level as much as 61.8%.

Validity Test and Reliability Test

The validity and reliability test of the instrument in this study was conducted on 30 mothers who had toddlers by giving a questionnaire containing 16 questions. Each question is said to be valid if the calculation result is found r count > r table (0.374).

Table 2
Uji validitas

Question Item	Value Validity	Information
CPTS 1 Ads	,564	Valid
CPTS 2	,608	Valid
CPTS 3	,535	Valid
CPTS 4	,512	Valid
CPTS 5	,413	Valid
CPTS 6	,526	Valid
CPTS 7	,476	Valid
CPTS 8	,661	Valid
Ownership of Latrines 1	,463	Valid
Ownership of Latrines 2	,839	Valid
Latrine Ownership 3	,676	Valid
Garbage Security 1	,847	Valid
Garbage Security 2	,673	Valid
Garbage Security 3	,580	Valid
Garbage Security 4	,539	Valid

Source. Research Processed Data, 2023

The results of the reliability test of this study show that each variable has high and medium reliability.

Univariate Analysis

Univariate analysis to describe the variables of handwashing with soap, ownership of healthy latrines and waste security against the incidence of diaere in terms of frequency distribution (n) and percentage (%) in 89 respondents.

Table 3
Univariate Analysis of Independent and Dependent Variables

Variable	Frequency (n=89)	Percentage (%)
Wash hands with soap		
- Not Good (score 1-12)	64	71,9
- Good (score 13-24)	25	28,1
Ownership of healthy latrines		
- Not having a healthy latrine	56	62,9
- Have a healthy latrine	33	37,1
Garbage security		
- Not good	54	60,7
- Good	35	39,3
Incidence of diarrhea		
- Diarrhea	55	61,8
- No diarrhea	34	38,2

Source. Research Processed Data, 2023

As a result, it was found that in the handwashing with soap variable as much as (71.9%) 64 of 89 respondents were included in the category of poor scores for the handwashing with soap variable. For the variable ownership of healthy latrines, most (62.9%) 56 out of 89 respondents do not have healthy latrines. And for the variable of waste security, the majority of respondents were included in the category of not good (60.7%), 54 of 89 respondents of waste security were not good. And on the variable for the incidence of diarrhea, most respondents (61.8%) have experienced toddler diarrhea in the last 6 months.

Bivariate analysis of the relationship between handwashing with soap, ownership of healthy latrines and waste security with the incidence of diarrhea in toddlers

Table 4
The relationship between hand washing with soap, ownership of healthy latrines and garbage security with the incidence of diarrhea in toddlers

	incidence of diarrhea						
variable	Diare		No Diare		Total		p-value
	N	%	N	%	N	%	

Handwashing with soap relationship	Not good good	48 7	53,9 7,9	16 18	18,0 20,2	64 25	100 100	0,000
Ownership of healthy latrines	Unhealthy healthy	46 9	51,7 10,1	10 24	11,2 27,0	56 33	100 100	0,000
Garbage safety	Not good good	38 17	42,7 19,1	16 18	18,0 20,2	54 35	100 100	0,065
Total		55	61,8	34	38,2	89	100	

Source. Research processed data, 2023

This analysis showed that 53.9% were not good at washing hands with soap experiencing diarrhea and based on the results of statistical tests obtained a p-value of 0.000 which means that there is a relationship between handwashing with soap to the incidence of diarrhea in toddlers. For the variable ownership of healthy latrines, 51.7% of unhealthy latrine owners have experienced diarrhea in toddlers during the last 6 months and based on statistical test results obtained a p-value of 0.000. This means that there is a relationship between healthy latrine ownership and diarrhea incidence. And for the variable of waste security, 42.7% of waste security is not good for diarrhea and based on the results of statistical tests, a p-value of 0.065 was obtained. This means that there is no relationship between waste safety and diarrhea in toddlers.

Multivariate analysis of the relationship between handwashing with soap and ownership of healthy latrines on the incidence of diarrhea in toddlers.

The multivariate analysis used is multiple logistic regression analysis.

Tabel 5

Hasil Analisis Regresi Logistik Ganda

No	Variable	B	S.E	Wald	Sig	Exp
1	Wash hands with soap	1,821	0,610	8,909	0,003	6,17
2	Ownership of healthy latrines	2,351	0,561	17,561	0,000	10,49

Source. Research processed data, 2023

From the results of multivariate analysis in this study shows that ownership of healthy latrines is the factor most associated with the incidence of diarrhea in toddlers with a value of p = 0.000 and an Exp (B) value of 10.496. This means that the variable ownership of latrines has a chance of experiencing diarrhea in toddlers by 10,496 times greater than the variable of hand washing with soap.

Discussion

Based on descriptive analysis of respondent characteristics, it is known that the age of respondents is mostly toddler age in the range between 2-3 years, where this age is included in the characteristics of toddler use. Age is a variable that is always considered in epidemiological investigations. Both morbidity and mortality rates, almost all conditions show a relationship with age. Although diarrhea is capable and proven to attack the adult human body, more cases are found in pediatric patients younger than 5 years.

As for the variable incidence of diarrhea, the findings in the field and processed in univariate analysis that the incidence of diarrhea in toddlers in the East Martapura region can be seen in table 4.2 the percentage of diarrhea incidence in toddlers in this study was 55 toddlers (61.8%) and no diarrhea as many as 34 toddlers (38.2%). That from the data obtained, the incidence of diarrhea is more than toddlers who do not have diarrhea. There are several factors that cause diarrhea in toddlers such as the quality of latrines, drinking water sources, hand washing habits, habits of feeding toddlers, breastfeeding in toddlers, toddler age, toddler gender, toddler nutritional status, mother's education level and family income

There is a relationship between hand washing with soap to the incidence of diarrhea in toddlers. There is a relationship between hand washing with soap and the incidence of diarrhea in this study because most mothers of toddlers who are not good in terms of washing hands with soap which results in toddlers can experience diare.

There is a relationship between healthy latrine ownership and diarrhea incidence. The relationship between healthy latrine ownership and diarrhea incidence in this study found that as many as 56 latrines still did not meet the criteria for healthy latrines. Most latrines in the latrine are not maintained clean, some latrines have latrine buildings but do not have closets, some latrines do not have roof houses, latrine floors are slippery and the latrine floor and walls are not tight so that it can allow insects And disease-transmitting animals can enter the cubluk / infiltration and cause odor.

There is no relationship between waste safety and diarrhea in toddlers. As many as 70.8% of respondents did not separate decomposing and non-decomposing waste, and as much as 30% of secured waste did not use closed covers or bins. Although 70.8 respondents did not sort organic and non-organic waste, this was not related to the incidence of diarrhea in toddlers, because the transmission of diarrheal diseases through the oral fecal route that occurs through polluted water, either polluted from the source, polluted during the journey to homes, or polluted when stored at home.

CONCLUSION

Based on the results of this study, it can be concluded that there is a relationship between hand washing with soap to the incidence of diarrhea in toddlers. There is a relationship between healthy latrine ownership and the incidence of diarrhea in toddlers. There is no relationship between waste safety and diarrhea in toddlers. While the variable most related to the incidence of diarrhea is the ownership of healthy latrines.

Based on the results of this study, it is hoped that health policy holders, namely the Banjar District Health Office, can conduct counseling and health information more intensively and regularly to puskesmas or people's homes in Banjar Regency to overcome the

problem of washing hands with soap, and having healthy latrines. In addition, it is expected for each puskesmas to improve health promotion to prevent diarrhea in toddlers. It is expected that puskesmas officers must intensively and continuously provide health counseling about factors related to the incidence of diarrhea in toddlers, especially regarding the ownership of healthy latrines and the habit of washing hands with soap.

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