# Factors Associated with the Occurrence of Diarrhea in Babies Under Five Years Old in the Public Health Center Kebun Kopi Jambi City

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Informasi Artikel Abstract

E-ISSN : 3026-6874 Vol: 2 No: 7 Juli 2024 Halaman : 202-209 Diarrhea is an infection of the digestive tract that poses a global health challenge, including in Indonesia. It is characterized by defecation occurring three or more times in children, or more than four times in neonates within 24 hours, with stools that are soft or liquid, and sometimes contain blood. The incidence of diarrhea at the Kebun Kopi Health Center is particularly high. This study aims to analyze the factors related to the incidence of diarrhea in the working area of the Kebun Kopi Community Health Center, Jambi City. The research utilized a cross-sectional study design, with a population of 843 people, from which 71 samples were selected through accidental sampling. Data were collected through observation and questionnaires, and analyzed univariately and bivariately using the chi-square test. The results indicate a significant relationship between latrine ownership (pvalue 0.000), hand washing behavior (p-value 0.000), and knowledge (p-value 0.000) with the incidence of diarrhea. The variables associated with the incidence of diarrhea at the Kebun Kopi Health Center in Jambi City include latrine ownership, hand washing behavior, and knowledge. The high incidence of diarrhea is closely linked to inadequate sanitation, poor hand washing practices. and low levels of health knowledge. To significantly reduce the incidence of diarrhea, it is essential to improve access to proper sanitation, promote effective hand washing practices, and enhance public knowledge about essential health practices.

#### **Keywords:**

Diarrhea Toilet Ownership Hand Washing Behavior

#### Abstrak

Diare merupakan penyakit infeksi saluran cerna yang menjadi tantangan kesehatan global, termasuk di Indonesia. Hal ini ditandai dengan buang air besar tiga kali atau lebih pada anak-anak, atau lebih dari empat kali pada neonatus dalam waktu 24 jam, dengan tinja lunak atau cair, dan terkadang mengandung darah. Angka kejadian diare di Puskesmas Kebun Kopi sangat tinggi. Penelitian ini bertujuan untuk menganalisis faktor-faktor yang berhubungan dengan kejadian diare di wilayah kerja Puskesmas Kebun Kopi Kota Jambi. Penelitian ini menggunakan desain studi cross-sectional, dengan populasi 843 orang, dimana 71 sampel dipilih melalui aksidental sampling. Data dikumpulkan melalui observasi dan kuesioner, kemudian dianalisis secara univariat dan bivariat dengan menggunakan uji chi-square. Hasil penelitian menunjukkan adanya hubungan yang signifikan antara kepemilikan jamban (p-value 0,000), perilaku mencuci tangan (p-value 0,000), dan pengetahuan (p-value 0,000) dengan kejadian diare. Variabel yang berhubungan dengan kejadian diare di Puskesmas Kebun Kopi Kota Jambi antara lain kepemilikan jamban, perilaku cuci tangan, dan pengetahuan. Tingginya kejadian diare erat kaitannya dengan sanitasi yang tidak memadai, praktik mencuci tangan yang buruk, dan rendahnya tingkat pengetahuan kesehatan. Untuk mengurangi kejadian diare secara signifikan, penting untuk meningkatkan akses terhadap sanitasi yang layak, mempromosikan praktik mencuci tangan yang efektif, dan meningkatkan pengetahuan masyarakat tentang praktik kesehatan yang penting.

Kata kunci: Diare, Kepemilikan Jamban, Perilaku Mencuci Tangan

#### INTRODUCTION

Diarrhea is a disorder of defecation with a frequency of 3 times or more than 3 times in children, while in neonates more than 4 times in 24 hours with a mushy, liquid consistency with or without blood mucus. Diarrhea disease can cause delayed growth and development and death by reducing body fluids in children under five (Ferasinta dkk, 2021).

Diarrhea is an infectious disease of the digestive tract that poses a significant health issue globally, including in Indonesia. According to WHO and UNICEF, approximately 2 billion cases of diarrhea occur each year, resulting in the deaths of 1.9 million children under five. Of these deaths, 78% happen in developing countries, particularly in Africa and Southeast Asia. (Victoria et al., 2023).

Indonesia's national data in 2014 indicated that the infant mortality rate (IMR) remained relatively high at 25 deaths per 1,000 live births. This figure falls short of the Millennium Development Goals (MDGs) target of 24 deaths per 1,000 live births. Infectious diseases, notably pneumonia and diarrhea, accounted for approximately 40% of these infant deaths. According to the Basic Health Research (Riskesdas, 2013), diarrhea was the leading cause of infant mortality at 46%, compared to pneumonia at 27%. For children aged 1-4 years, diarrhea caused 25.2% of deaths, while pneumonia accounted for 15.5%. (Provensi, 2015).

In 2021, the discovery of diarrhea patients of all ages in Jambi Province amounted to 37,148 cases (38.38%) spread across 11 districts / cities. When compared to the previous year, there was a decrease in case finding where diarrhea patients totaled 46,379 cases (48.41%) in 2020. The highest number of diarrhea cases for all ages in Jambi Province in 2022 was in Muaro Jambi Regency, which amounted to 5,852 cases (53.28%). The lowest case was Sungai Penuh City with 375 cases (14.21%).

Based on data obtained from the Jambi Provincial Health Office, Muaro Jambi had the highest number of diarrhea cases with 5,852 cases and the lowest number of diarrhea cases in Sungai Penuh with 375 cases. The target indicator of diarrhea in Jambi City, which has a smaller number of cases of 3,820 compared to Muaro Jambi, which recorded 5,850 cases of diarrhea, can be a priority because of the significant difference in the number of cases. The decrease in the number of cases in Jambi City indicates the effectiveness of the prevention and intervention programs that have been implemented, as well as the potential to further improve access to health services and sanitation education. The focus on Jambi City may provide an opportunity to identify successful practices and support the dissemination of prevention strategies in other regions, including Muaro Jambi, with the aim of reducing the overall burden of diarrheal disease in the region. Individual characteristic factors include the age of toddlers <24 months, the nutritional status of toddlers, and the education level of caregivers. Preventive behavior factors include the behavior of washing hands before eating, washing eating utensils before use, washing food ingredients, washing hands with soap after defecation, and boiling drinking water, as well as the habit of feeding children outside the home. Environmental factors include housing density, availability of clean water facilities (WASH), WASH utilization, and clean water quality (Utami & Luthfiana, n.d.).

Several studies have explored the factors associated with diarrhea. Research by (Soentpiet et al, 2015) demonstrated a link between fecal disposal sites and diarrhea in the Tondano River basin. Similarly, a study by (Evayanti et al, 2012) in Bali Province found a correlation between handwashing habits and the incidence of diarrhea in toddlers seeking treatment at the Tabanan General Hospital, with a p-value of 0.010. (Khimah's research, 2012) also confirmed a relationship between maternal knowledge about diarrhea and its occurrence in toddlers at the Karanganyar District Health Center, Karanganyar Regency, with a p-value of 0.001.

Based on this background, the researchers are interested in investigating the "Factors Associated with the Occurrence of Diarrhea in Babies Under Five Years Old in the Public Health Center Kebun Kopi Jambi City

#### **METHOD**

This type of research is quantitative, namely to see the factors associated with the incidence of diarrhea in toddlers in the working area of the Kebun Kopi Health Center, Jambi City. By using a cross sectional design which is a type of research characterized by observation of relevant data at a certain point in time to try to get clear and precise information. The number of samples in this study were 71 respondents, the instruments in this study used questionnaires and observation sheets. The questionnaire was used to measure the variables of clean water supply, ownership of healthy latrines, education, occupation, hand washing habits and knowledge.

#### **RESULTS AND DISCUSSION**

## a. Univariate Analysis

#### 1. Overview of Family Latrines

Based on the results of the study, it is known that the frequency distribution of the description of the respondent's family latrine in mothers who have toddlers from the Kebun Kopi Community Health Center can be seen in the following table:

Table 1. Frequency Distribution of Family Latrines

| No.   | Kategori          | Frequency | Percent |
|-------|-------------------|-----------|---------|
| 1     | Tidak<br>Memiliki | 51        | 71.8    |
| 2     | Memiliki          | 20        | 28.2    |
| Total |                   | 71        | 100.0   |

Based on table 1 above, the characteristics of family latrines from 71 respondents show that 20 respondents (28.2%) have family latrines while 51 respondents (71.8%) do not have family latrines.

## 2. Overview of Handwashing Behavior

Based on the results of the study, it is known that the frequency distribution of the description of the respondent's Hand Washing Behavior in mothers who have toddlers from the Kebun Kopi Community Health Center can be seen in the following table:

Table 2: Frequency Distribution of Handwashing Behavior

| No.   | Kategori    | Frequency | Percent |
|-------|-------------|-----------|---------|
| 1     | Kurang Baik | 28        | 39.4    |
| 2     | Baik        | 43        | 60.6    |
| Total |             | 71        | 100.0   |

Based on table 2 above, the characteristics of Handwashing Behavior of 71 respondents show the results that those with poor Handwashing Behavior are 28 respondents (39.4%) while good Handwashing Behavior is 43 respondents (60.6%).

## 3. Knowledge Overview

Based on the results of the study, it is known that the frequency distribution of respondents' knowledge in mothers who have toddlers from the Kebun Kopi Community Health Center can be seen in the following table:

Table 3 Frequency Distribution of Knowledge

| No.   | Kategori    | Frequency | Percent |
|-------|-------------|-----------|---------|
| 1     | Kurang Baik | 31        | 43.7    |
| 2     | Baik        | 40        | 56.3    |
| Total |             | 71        | 100.0   |

Based on table 3 above, the knowledge characteristics of 71 respondents showed that those with poor knowledge were 31 respondents (43.7%) while those with good knowledge were 40 respondents (56.3%).

## 4. Overview of diarrhea incidence

Based on the results of the study, the frequency distribution of the description of the incidence of diarrhea in respondents' mothers who have toddlers from the Kebun Kopi Community Health Center can be seen in the following table:

Table 4 Frequency distribution of diarrhea incidence

| No.   | Kategori Frequency |    | Percent |  |  |
|-------|--------------------|----|---------|--|--|
| 1     | Diare              | 36 | 50.7    |  |  |
| 2     | Tidak Diare        | 35 | 49.3    |  |  |
| Total |                    | 71 | 100.0   |  |  |

Based on table 4 above, the characteristics of the incidence of diarrhea from 71 respondents showed that 35 respondents (50.7%) experienced diarrhea while 35 respondents (49.3%) did not experience diarrhea.

## b. Bivariate Analysis

#### 1. Relationship between latrine ownership and diarrhea incidence

The purpose of this study was to determine the relationship between latrine ownership and the incidence of diarrhea in mothers of toddlers in the Kebun Kopi Health Center area:

Table 5. Relationship between latrine ownership and diarrhea incidence

| No | Vonomilikan           |    | Kejadia | an Diare |         | т.   | ntal | P.      |         |
|----|-----------------------|----|---------|----------|---------|------|------|---------|---------|
|    | Kepemilikan<br>Jamban | D  | iare    | Tida     | k Diare | _ 10 | otal | - Value | PR      |
|    | Janiban               | F  | %       | f        | %       | F    | %    | - value | 1211    |
| 1  | Tidak Memiliki        | 33 | 64,7    | 18       | 35,3    | 51   | 71,8 |         | 4.314   |
| 2  | Memiliki              | 3  | 15      | 17       | 85      | 20   | 28,2 | 0.000   | (1.490- |
|    | Total                 | 37 | 50,7    | 35       | 49,3    | 71   | 100  |         | 12.486) |

Based on Table 5, the statistical test results indicate a significant relationship between the ownership of family latrines and the incidence of diarrhea among mothers with toddlers in the Kebun Kopi Community Health Center area. The p-value obtained is 0.000, which is less than 0.05. This means that among the respondents who do not have family latrines, 33 (64.7%) experienced diarrhea, whereas only 3 (15%) of those with latrines experienced diarrhea. Conversely, 18 respondents (35.3%) without latrines did not experience diarrhea, compared to 17 respondents (85%) with latrines.

The chi-square test shows a significant difference in the proportion of diarrhea incidence between respondents with and without latrines. Therefore, it can be concluded that there is a relationship between latrine ownership and the incidence of diarrhea. The risk estimate calculation yields a PR = 4.314 (95% CI; 1.490-12.486), indicating that respondents without latrines are 4.314 times more likely to experience diarrhea than those with latrines.

#### 2. Relationship between hand washing behavior and diarrhea incidence

The purpose of this study was to determine the relationship between hand washing behavior and the incidence of diarrhea among mothers with toddlers in the Kebun Kopi Health Center area, as shown in the following table:

Table 6 Relationship between hand washing behavior and diarrhea incidence

|    | Perilaku Cuci |    | Kejadia | an Diare |         | _ т. | stal | P.      |         |  |
|----|---------------|----|---------|----------|---------|------|------|---------|---------|--|
| No |               | D  | iare    | Tida     | k Diare | 10   | otal | – Value | PR      |  |
|    | Tangan        | f  | %       | f        | %       | f    | %    | – varue |         |  |
| 1  | Kurang Baik   | 25 | 89,3    | 3        | 10,7    | 28   | 39,4 |         | 3.490   |  |
| 2  | Baik          | 11 | 25,6    | 32       | 74,4    | 43   | 60,6 | 0,000   | (2.063- |  |
|    | Total         | 36 | 50,7    | 35       | 49,3    | 71   | 100  |         | 5.904)  |  |

Based on Table 6, the statistical test results indicate a significant relationship between hand washing behavior and the incidence of diarrhea among mothers with toddlers in the Kebun Kopi Community Health Center area. The p-value obtained is 0.000, which is less than 0.05. This means that among the respondents with poor hand washing behavior, 25 (89.3%) experienced

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diarrhea, while only 11 (25.6%) of those with good hand washing behavior experienced diarrhea. Conversely, 3 respondents (10.7%) with poor hand washing behavior did not experience diarrhea, compared to 32 respondents (74.4%) with good hand washing behavior.

The chi-square test results show a significant difference in the proportion of diarrhea incidence between respondents with poor and good hand washing behavior. Therefore, it can be concluded that there is a relationship between hand washing behavior and the incidence of diarrhea. The risk estimate calculation yields a PR = 3.490 (95% CI; 2.063-5.904), indicating that respondents with poor hand washing behavior are 3.490 times more likely to experience diarrhea than those with good hand washing behavior.

### 3. Relationship between knowledge and diarrhea incidence

The purpose of this study was to determine the relationship between knowledge and the incidence of diarrhea among mothers with toddlers in the Kebun Kopi Health Center area, as shown in the following table:

| Table 7  | Relationship | between | knowledge | and d | iarrhea | incidence |
|----------|--------------|---------|-----------|-------|---------|-----------|
| 10.010 / |              |         |           |       |         |           |

|    |             |    | Kejadia | an Diare |         | т     | otol |             |         |
|----|-------------|----|---------|----------|---------|-------|------|-------------|---------|
| No | Pengetahuan | D  | iare    | Tida     | k Diare | Total |      | P-<br>Value | PR      |
|    | _           | f  | %       | f        | %       | F     | %    | - vaiue     |         |
| 1  | Kurang      | 26 | 83,9    | 5        | 16,1    | 31    | 43,7 |             | 3.355   |
| 2  | Baik        | 10 | 25      | 30       | 75      | 40    | 56,3 | 0,000       | (1.919- |
|    | Total       | 36 | 50,7    | 35       | 49,3    | 71    | 100  | _           | 5.865)  |

Based on Table 7, the statistical test results indicate a significant relationship between knowledge and the incidence of diarrhea among mothers with toddlers in the Kebun Kopi Community Health Center area. The p-value obtained is 0.000, which is less than 0.05. This means that among the respondents with poor knowledge, 26 (83.9%) experienced diarrhea, whereas only 10 (25%) of those with good knowledge experienced diarrhea. Conversely, 5 respondents (16.1%) with poor knowledge did not experience diarrhea, compared to 30 respondents (75%) with good knowledge.

The chi-square test results show a significant difference in the proportion of diarrhea incidence between respondents with poor knowledge and those with good knowledge. Therefore, it can be concluded that there is a relationship between knowledge and the incidence of diarrhea. The risk estimate calculation yields a PR = 3.355 (95% CI; 1.919-5.865), indicating that respondents with poor knowledge are 3.355 times more likely to experience diarrhea than those with good knowledge.

### **DISCUSSION**

## a. Overview of the incidence of diarrhea in toddlers

Diarrhea is a condition characterized by an increased frequency of bowel movements, with stools that are typically softer or more liquid than usual, occurring at least three times within a 24-hour period. Based on the analysis of 71 respondents, it was found that 35 respondents (50.7%) experienced diarrhea, while 35 respondents (49.3%) did not.

Based on the results of research on family latrines from 71 respondents, the results showed that those who had family latrines were 20 respondents (28.2%) while those who did not have family latrines were 51 respondents (71.8%). Furthermore, the results of research on family support hand washing from 71 respondents showed that those who washed their hands poorly were 28 respondents (39.4%) while good hand washing was 43 respondents (60.6%).

Finally, the results of research on knowledge from 71 respondents showed that those who had poor knowledge were 31 respondents (43.7%) while those who had good knowledge were 40 respondents (56.3%).

## b. Relationship between ownership of a healthy latrine and the incidence of diarrhea

Experience in several countries has shown that the use of latrines significantly reduces the risk of diarrheal disease. The results of this statistical test indicate a relationship between family latrine ownership and the incidence of diarrhea among mothers with toddlers in the Kebun Kopi Community Health Center area, with a p-value of 0.000, which is less than 0.05. This means that among respondents who do not have family latrines, 33 respondents (64.7%) experienced diarrhea, while only 3 respondents (15%) with latrines experienced diarrhea. Conversely, 18 respondents (35.3%) without latrines did not experience diarrhea, compared to 17 respondents (85%) with latrines.

This study aligns with the research of (Soentpiet et al, 2015), which demonstrated a relationship between fecal disposal sites and diarrhea in the Tondano River basin. Experience in several countries has shown that the use of latrines significantly reduces the risk of diarrheal disease. Families that lack latrines should build them and ensure that all family members use them, as highlighted by (Juffrie et al, 2016).

Similarly, research by (Harokan, 2022) supports these findings. An analysis of the relationship between latrine ownership and the incidence of diarrhea in the Tanjung Agung Health Center working area showed a significant relationship (p-value = 0.000) using the Chi-Square statistical test. The data indicated that 30 respondents (68.2%) who did not have a latrine experienced diarrhea (Dinas Kesehatan Provinsi Jambi, 2018).

Having a proper latrine is crucial in reducing the risk of diarrhea, as it ensures safe and easy access to defecation, thereby minimizing contact with germs and pathogens that cause disease. Proper latrine use can significantly reduce the risk of contamination and the spread of diarrheacausing bacteria. These findings suggest that improving access to and ownership of adequate latrines is essential for enhancing public health and preventing diarrheal diseases among mothers of children under five.

## c. Relationship between the Behavioral Factors of Tagan Washing with the Incidence of Diarrhea

Hands play a crucial role in the transmission of germs, as unclean hands can introduce contaminated food or drinks into the human body. Handwashing with soap is an essential behavior for preventing diarrhea. The results of the statistical test show a significant relationship between handwashing and the incidence of diarrhea among mothers with toddlers in the Kebun Kopi Health Center area, with a p-value of 0.000, which is less than 0.05. Specifically, 25 respondents (89.3%) who washed their hands less frequently experienced diarrhea, compared to 11 respondents (25.6%) who washed their hands properly. Additionally, only 3 respondents (10.7%) who washed their hands poorly did not experience diarrhea, whereas 32 respondents (74.4%) who practiced good handwashing did not experience diarrhea.

These findings are consistent with the research by (Evayanti et al, 2012) in Bali Province, which found a relationship between handwashing habits and the incidence of diarrhea in toddlers seeking treatment at the Tabanan General Hospital, with a p-value of 0.010. Diarrhea is often transmitted through behaviors associated with healthy living, and hands are a critical factor in this transmission, as unclean hands can introduce disease-causing germs into the body. Proper handwashing with soap is vital for preventing diarrhea. Failing to wash hands before feeding children or after defecation increases the risk of diarrheal diseases (Harokan, 2022).

Supporting research by (Yuliansari, 2021), titled "The Relationship between Clean and Healthy Living Behavior (PHBS) and the Incidence of Diarrhea in Toddlers," also found a significant relationship between handwashing with soap and the incidence of diarrhea (p-value  $0.007 < \alpha = 0.05$ ). Statistically, there is a clear relationship between handwashing with soap and the incidence of diarrhea in toddlers. The calculation of the odds ratio (OR) yielded a value of 5.12, with a 95% confidence interval (CI) of 1.56 - 16.76. This indicates that toddlers with mothers who do not regularly wash their hands with soap have a five times greater risk of developing diarrhea compared to those with mothers who do practice regular handwashing (Harokan, 2022).Good hand washing habits can significantly reduce the risk of diarrhea. Good hand washing with soap and water removes germs and pathogens from the hands that can cause illness, including diarrhea. Without good hand washing, germs on your hands can easily be transmitted to your mouth or food, which can cause

infection. Washing your hands properly can remove germs and bacteria that cause diarrhea, thereby preventing the spread of disease. Therefore, increasing awareness and practicing correct hand washing is very important in preventing diarrhea, especially for mothers of toddlers.

## d. Relationship between knowledge factors and the incidence of diarrhea

The level of knowledge about diarrhea and prevention practices can significantly influence how effectively a person implements measures to prevent the condition. The statistical test results indicate a relationship between knowledge and the incidence of diarrhea among mothers of toddlers in the Kebun Kopi Community Health Center area, with a p-value of 0.000, which is less than 0.05. Specifically, 26 respondents (83.9%) with poor knowledge experienced diarrhea, compared to 10 respondents (25%) with good knowledge. Conversely, 5 respondents (16.1%) with poor knowledge did not experience diarrhea, while 30 respondents (75%) with good knowledge did not experience diarrhea.

These findings are consistent with research by (Khimah, 2012), which demonstrated a relationship between maternal knowledge about diarrhea and its incidence among toddlers at the Karangnyar District Health Center, with a p-value of 0.001. High morbidity and mortality rates are strongly influenced by the mother's level of knowledge. Social conditions greatly determine the level of public health, and maternal knowledge plays a crucial role in maintaining the health of children. Educated mothers tend to have better insight into maintaining their child's health. Improved health knowledge can lead to healthier behaviors and environments, thereby reducing disease incidence (Krismarini, 2009).

Research by (Rahmaniu et al, 2022), titled "The Relationship between Mother's Knowledge and the Incidence of Diarrhea in Toddlers in the Working Area of the Lapaddekota Parepare Community Health Center," supports these findings. Among 79 respondents, 5 mothers (16.1%) with good knowledge had toddlers with diarrhea, while 26 mothers (83.9%) with good knowledge had toddlers without diarrhea. Conversely, 31 mothers (88.6%) with sufficient knowledge had toddlers with diarrhea, and 4 mothers (11.4%) with sufficient knowledge had toddlers without diarrhea. All 13 mothers (100%) with poor knowledge had toddlers with diarrhea. The chi-square test yielded a p-value of 0.000, indicating a significant relationship between maternal knowledge and the incidence of diarrhea in the working area of the Lapadde Community Health Center, Parepare City (Ruhardi & Yuliansari, 2021).

Education and counseling on proper health practices are crucial for preventing diarrhea, particularly among mothers of toddlers. Enhancing mothers' knowledge about maintaining cleanliness and preventing disease can positively impact family health and reduce the incidence of diarrhea. Understanding the causes of diarrhea, such as bacterial, viral, or parasitic infections, can help identify potential risks and implement appropriate prevention strategies.

#### **CONCLUSION**

The research indicates a relationship between latrine ownership, hand washing behavior, and mothers' knowledge with the incidence of diarrhea in toddlers at the Kebun Kopi Health Center in Jambi City. Therefore, it is recommended that the Community Health Center enhance outreach activities concerning the factors that cause diarrhea. This effort should be supported by health workers, including doctors, nurses, community health center cadres, and other related parties.

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