

THE RELATIONSHIP BETWEEN MOTHERS' NUTRITIONAL STATUS AND KNOWLEDGE AND THE INCIDENCE OF DIARRHEA AMONG TODDLERS AT THE TEJOAGUNG COMMUNITY HEALTH CENTER, METRO CITY

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ABSTRAK : HUBUNGAN ANTARA STATUS GIZI DAN PENGETAHUAN IBU DENGAN INSIDENSI DIARE PADA BALITA DI PUSAT KESEHATAN MASYARAKAT TEJOAGUNG, METRO CITY

Diare masih menjadi salah satu penyebab utama morbiditas pada balita di Indonesia. Status gizi dan pengetahuan ibu merupakan faktor yang berhubungan dengan kejadian diare pada balita. Penelitian ini bertujuan untuk mengetahui hubungan status gizi dan pengetahuan ibu dengan kejadian diare pada balita di wilayah kerja Puskesmas Tejoagung. Penelitian ini menggunakan desain kuantitatif analitik dengan pendekatan cross sectional. Sampel penelitian sebanyak 60 ibu yang memiliki balita, dipilih menggunakan teknik accidental sampling. Data pengetahuan ibu dikumpulkan menggunakan kuesioner, status gizi diukur menggunakan timbangan dan stadiometer, sedangkan kejadian diare diperoleh melalui lembar checklist berdasarkan diagnosis. Analisis data dilakukan menggunakan uji Chi-square dengan tingkat kepercayaan 95%. Hasil penelitian menunjukkan bahwa sebanyak 41,7% balita mengalami diare, 33,3% balita memiliki status gizi kurang, dan 40,0% ibu memiliki pengetahuan kurang. Hasil uji statistik menunjukkan terdapat hubungan antara status gizi dengan kejadian diare pada balita (p -value = 0,002) dan terdapat hubungan antara pengetahuan ibu dengan kejadian diare pada balita (p -value = 0,008). Simpulan penelitian menunjukkan bahwa status gizi dan pengetahuan ibu berhubungan dengan kejadian diare pada balita. Edukasi kesehatan serta pemantauan status gizi secara berkala perlu ditingkatkan sebagai upaya pencegahan diare pada balita.

Kata kunci: diare, balita, status gizi, pengetahuan ibu

ABSTRACT

Diarrhea remains one of the leading causes of morbidity among children under five in Indonesia. Nutritional status and maternal knowledge are factors associated with the incidence of diarrhea in toddlers. This study aimed to determine the relationship between nutritional status and maternal knowledge with diarrhea incidence among toddlers at Puskesmas Tejoagung. This study used a quantitative analytic design with a cross-sectional approach. The sample consisted of 60 mothers with toddlers selected using accidental sampling technique. Maternal knowledge data were collected using a structured questionnaire, nutritional status was measured using weighing scales and a stadiometer, while diarrhea incidence data were obtained through a checklist based on medical diagnosis. Data were analyzed using the Chi-square test with a 95% confidence level. The results showed that 41.7% of toddlers experienced diarrhea, 33.3% had poor nutritional status, and 40.0% of mothers had low knowledge levels. Statistical analysis showed a significant relationship between nutritional status and diarrhea incidence (p -value = 0.002) and a significant relationship between maternal knowledge and diarrhea incidence (p -value = 0.008). In conclusion, nutritional status and maternal knowledge were significantly associated with diarrhea incidence among toddlers. Health education and regular nutritional monitoring should be improved as efforts to prevent diarrhea among toddlers.

Keywords: diarrhea, toddler, nutritional status, maternal knowledge

INTRODUCTION

Diarrhea remains one of the leading health problems among infants and young children and contributes to high morbidity rates in developing countries, including Indonesia. Diarrhea is defined

as having three or more loose or watery bowel movements per day, which can lead to dehydration if not properly managed (Alfianur et al., 2021). Toddlers are particularly vulnerable to diarrhea

because their immune systems have not yet fully developed (Miswan et al., 2023).

Diarrhea remains one of the leading health issues among infants and young children and contributes to high morbidity rates in developing countries, including Indonesia. Globally, the World Health Organization reports approximately 1.7 billion cases of diarrhea among children each year. In Indonesia, the prevalence of diarrhea among infants and young children remains a concern, although it has shown a downward trend in recent years. Data from the Ministry of Health of the Republic of Indonesia for 2023 indicates a prevalence of diarrhea among infants of 4.9%, with diarrhea treatment coverage reaching 31.7%.

In Lampung Province, diarrhea ranks among the top ten most common diseases, with case numbers remaining quite high. Meanwhile, according to 2023 data from the Metro City Health Department, the Tejoagung Community Health Center has the highest number of diarrhea cases among toddlers in Metro City, with 61 cases out of 121 toddlers (50.4%) experiencing diarrhea.

The incidence of diarrhea in toddlers is influenced by various factors, including nutritional status and maternal knowledge. Poor nutritional status can weaken a child's immune system, making them more susceptible to infections, including diarrhea (Khofifah et al., 2023). Additionally, a mother's knowledge regarding the prevention and management of diarrhea plays a crucial role in the adoption of clean and healthy living practices within the family environment (Yulistya et al., 2022).

Several previous studies have shown a link between mothers' nutritional status and knowledge and the incidence of diarrhea in toddlers. However, the results of these studies still vary across different regions and among respondents with different characteristics. No similar studies on the relationship between these two factors and diarrhea in infants within the service area of the Tejoagung Community Health Center have been conducted in recent years, even though this area has the highest number of infant diarrhea cases in Metro City. This situation serves as a key rationale for conducting this study.

The research question for this study is: "Is there a relationship between mothers' nutritional status and knowledge and the incidence of diarrhea among toddlers in the service area of the Tejoagung Community Health Center?" The purpose of this study is to determine the relationship between mothers' nutritional status and knowledge and the

incidence of diarrhea among toddlers in the service area of the Tejoagung Community Health Center.

RESEARCH METHODS

This study is a quantitative study with an analytical design using a cross-sectional approach, in which the independent and dependent variables are measured simultaneously. The population in this study consists of all mothers with toddlers who visited the Tejoagung Community Health Center in Metro City, with a sample size of 60 respondents. Due to time constraints and the limited available sample, the sampling method used was accidental sampling. This study was conducted from April 22 to May 17, 2025. The independent variables in this study were maternal nutritional status and knowledge, while the dependent variable was the incidence of diarrhea in infants. Data collection utilized a questionnaire to measure maternal knowledge and a checklist to assess nutritional status and the incidence of diarrhea. Data were analyzed univariately to determine frequency distributions and bivariately using the Chi-Square test with a 95% confidence level ($\alpha = 0.05$). This study obtained ethical approval from the Tanjungkarang Polytechnic of Public Health Ethics Committee under number 145/KEPK-TJK/IV/2025.

RESEARCH RESULTS

Incidence of diarrhea among toddlers at the Tejoagung Community Health Center

Table 1

Distribution of Diarrhea Cases Among Toddlers at the Tejoagung Community Health Center

Diarrhea	Total	(%)
Diarrhea	25	41,7
No diarrhea	35	58,3

Table 1 shows that of the 60 toddlers, 25 (41.7%) had diarrhea.

Nutritional status of toddlers at the Tejoagung Community Health Center

Table 2

Distribution of Nutritional Status Among Toddlers at the Tejoagung Community Health Center

Nutritional status	Total	(%)
Malnutrition	20	33,3
Good/adequate nutrition	40	66,7

Table 2 shows that the majority of toddlers—40 children (66.7%)—have good or better nutritional status.

The level of knowledge among mothers at the Tejoagung Community Health Center

Table 3
Distribution of Mothers' Knowledge About Diarrhea at the Tejoagung Community Health Center

Knowledge	Total	(%)
lack of knowledge	24	40,0

Good knowledge	36	60.0
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Table 3 shows that the majority of mothers of toddlers have good knowledge, namely 36 mothers (60.0%)

The relationship between nutritional status and the incidence of diarrhea in toddlers

Table 4. shows that diarrhea was more prevalent among toddlers with poor nutritional status, at 70.0%. The results of the chi-square test showed a p-value of 0.002 ($p < 0.05$), indicating a significant association between nutritional status and the incidence of diarrhea among toddlers.

Table 4
Relationship Between Nutritional Status and the Incidence of Diarrhea in Toddlers

Nutritional status	Diarrhea in toddlers				Total		P-value
	Diarrhea		No diarrhea		N	%	
	N	%	N	%			
Malnutrition	14	70.0	6	30.0	20	100	0,002
Good/adequate nutrition	11	27,5	29	72,5	40	100	

The relationship between mothers' knowledge and the incidence of diarrhea in toddlers

Table 5. shows that the incidence of diarrhea was higher among toddlers whose mothers had limited knowledge, at 62.5%. The results of the chi-

square test showed a p-value of 0.008 ($p < 0.05$), indicating a significant association between maternal knowledge and the incidence of diarrhea in toddlers.

Table 5
Relationship Between Mothers' Knowledge and the Incidence of Diarrhea in Toddlers

Knowledge	Diarrhea in toddlers				Total		P-value
	Diarrhea		No diarrhea		N	%	
	N	%	N	%			
lack of knowledge	15	62,5	9	37,5	24	100	0,008
Good knowledge	10	27,8	26	72,2	36	100	

DISCUSSION

Cases of Diarrhea in Toddlers

The results of the study indicate that 41.7% of toddlers in the service area of the Tejoagung Community Health Center suffer from diarrhea. This figure indicates that the incidence of diarrhea among toddlers remains relatively high and constitutes a health issue that requires attention. These findings align with the study by Wibowo and Kusumawardani (2024), which reported a 37.8% incidence of diarrhea among toddlers. However, these results are lower than those of Suparmi et al. (2024), who found a prevalence of diarrhea at 68.2%.

The high incidence of diarrhea among toddlers can be influenced by various factors, such as environmental sanitation, food and beverage hygiene, nutritional status, and clean and healthy living practices. In addition, age also plays a role in increasing toddlers' susceptibility to diarrhea. Based on respondent characteristics, the majority of infants and toddlers are in the 13–23-month age range. At this age, children are in the oral phase and begin actively exploring their surroundings by putting objects in their mouths, thereby increasing the risk of exposure to microorganisms that cause diarrhea.

Physiologically, a toddler's immune system is not yet fully developed, making them more

susceptible to gastrointestinal infections. This makes toddlers more prone to gastrointestinal disorders caused by bacterial, viral, or parasitic contamination. If diarrhea occurs repeatedly and is not properly managed, it can lead to dehydration, growth delays, and even increase the risk of malnutrition in toddlers.

Nutritional Status of Toddlers

The results of the study indicate that 33.3% of toddlers are malnourished. This finding indicates that there are still nutritional problems among toddlers in the service area of the Tejoagung Community Health Center. This result is higher than that of Khofifah et al. (2023), who found a prevalence of undernutrition of 23.3%, but lower than that of Oktariana et al. (2023), which was 52.1%.

Nutritional status is a key indicator of a toddler's health and immune system. Toddlers with poor nutritional status tend to have weaker immune systems, making them more susceptible to infectious diseases, including diarrhea. Nutrient deficiencies can interfere with antibody production and reduce the body's ability to fight pathogenic microorganisms. This makes toddlers more prone to recurrent infections, which ultimately affect their growth and development.

In this study, the majority of toddlers were between 13 and 23 months of age, a transitional period from complementary feeding to a family diet. During this period, children begin to consume a variety of foods, increasing the risk of nutritional imbalances and food contamination. Inappropriate feeding practices—whether in terms of quantity, quality, or food hygiene—can affect the nutritional status of toddlers.

Mothers' knowledge also plays a crucial role in meeting children's nutritional needs. Mothers who have a good understanding of nutrition are generally better able to provide healthy, nutritious, and hygienic food for their toddlers. Therefore, improving nutrition education for mothers is a key strategy for reducing the incidence of malnutrition and preventing infectious diseases in toddlers.

Mothers' Knowledge of Diarrhea

The results of the study indicate that 40.0% of mothers have insufficient knowledge about diarrhea in toddlers. These findings suggest that mothers' knowledge regarding the prevention and management of diarrhea still needs to be improved. This study is consistent with the findings of Safitri et al. (2025), which showed that mothers with low

levels of knowledge were more likely to have toddlers who experienced diarrhea.

Knowledge is a predisposing factor that can influence a person's health behavior. Mothers with good knowledge of diarrhea tend to have a better understanding of its causes, signs, and symptoms, as well as prevention methods and initial management of diarrhea in toddlers. Conversely, mothers with limited knowledge tend to pay less attention to environmental hygiene, food sanitation, and clean and healthy living practices, which can increase the risk of diarrhea in children.

A mother's level of education is one of the factors that influence her knowledge. Mothers with higher levels of education generally find it easier to absorb health information and adopt healthy behaviors in their daily lives. In addition, access to health information through health workers, social media, and Posyandu activities can also influence a mother's level of knowledge.

Improving mothers' knowledge is crucial to preventing diarrhea in young children. Regular health education through outreach programs, counseling, and Posyandu activities is expected to raise mothers' awareness of the importance of food safety, the use of clean water, handwashing with soap, and the initial management of diarrhea at home.

The Relationship Between Nutritional Status and the Incidence of Diarrhea in Toddlers

The results of the study indicate a significant association between nutritional status and the incidence of diarrhea in toddlers, with a p-value of 0.002. The incidence of diarrhea was higher among toddlers with poor nutritional status compared to those with good nutritional status. These findings are consistent with the studies by Khofifah et al. (2023) and Arsi et al. (2025), which state that nutritional status is significantly associated with the incidence of diarrhea in infants.

Biologically, nutritional status is closely linked to a child's immune system. Toddlers with poor nutritional status experience impaired immune function, making them more susceptible to infection by microorganisms that cause diarrhea. Energy and protein deficiencies can disrupt immune cell function and reduce the body's ability to fight gastrointestinal infections.

The relationship between diarrhea and nutritional status is reciprocal. Persistent diarrhea can lead to fluid and nutrient loss, thereby worsening the nutritional status of infants and toddlers. Conversely, infants and toddlers with poor nutritional status are more susceptible to diarrheal

infections due to their weakened immune systems. This condition can create a vicious cycle between diarrhea and malnutrition if not properly managed.

The findings of this study highlight the importance of regularly monitoring the nutritional status of infants and toddlers through Posyandu activities and primary health care services. In addition, education on providing a balanced diet, exclusive breastfeeding, and appropriate complementary feeding needs to be continuously improved as a preventive measure against diarrhea in infants and toddlers.

The Relationship Between Mothers' Knowledge and the Incidence of Diarrhea in Toddlers

The results of the study indicate a significant association between mothers' knowledge and the incidence of diarrhea in toddlers, with a p-value of 0.008. Toddlers whose mothers have limited knowledge are more likely to experience diarrhea than toddlers whose mothers have good knowledge. These findings are consistent with those of Rahmani et al. (2022) and Ramon et al. (2021), which also demonstrated a significant association between maternal knowledge and the incidence of diarrhea in infants.

A mother's knowledge plays a crucial role in shaping the family's health behaviors, particularly in preventing infectious diseases in children. Mothers with good knowledge are more likely to practice clean and healthy habits, such as washing their hands before preparing food, keeping eating utensils clean, using clean water, and providing hygienic food to their children. These behaviors can reduce the risk of contamination by microorganisms that cause diarrhea.

In addition, mothers with good knowledge are better able to provide initial treatment for diarrhea at home, such as administering oral rehydration solution, increasing fluid intake, and immediately taking their child to a health facility if signs of dehydration appear. Conversely, a lack of knowledge can lead to delays in treatment and increase the risk of complications in toddlers with diarrhea.

The results of this study indicate that improving health education for mothers of young children should be a top priority for health workers, particularly at the primary care level. Health promotion programs-including health education sessions, classes for mothers of young children, and Posyandu activities-need to be implemented on an ongoing basis to increase mothers' knowledge and reduce the incidence of diarrhea among young children.

CONCLUSION

The results of the study indicate a correlation between maternal nutritional status and knowledge and the incidence of diarrhea among toddlers at the Tejoagung Community Health Center. Toddlers with poor nutritional status and mothers with low levels of knowledge are at higher risk of developing diarrhea.

SUGGESTIONS

Health workers at the Tejoagung Community Health Center are advised to step up their promotional and preventive efforts through regular education for mothers of young children on diarrhea prevention, the practice of Clean and Healthy Living Behaviors (PHBS), handwashing with soap, and the provision of nutritionally balanced meals through Posyandu activities, classes for mothers of young children, and home visits to at-risk families. In addition, it is necessary to monitor the growth of infants and toddlers periodically through anthropometric measurements and the provision of supplementary food for those with poor nutritional status.

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