

# Factors associated to mothers' behaviors in dealing with diarrhea among toddlers in South Atambua

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## ARTICLE INFO

### Article history

Received: Juli 07, 2023

Revised: January 05, 2024

Accepted: January 16, 2024

### Keywords:

Diarrhea;  
Mother's behavior;  
Handling diarrhea in toddlers

## ABSTRACT

Diarrhea can be appropriately treated to reduce its severity. Behavioral elements within society are risk factors that can lead to diarrheal disease. Poor sanitation practices, inadequate access to clean water, improper food handling, and insufficient hygiene habits can increase the risk of transmission of diarrheal illness. Additionally, socio-economic disparities, cultural beliefs, and educational levels can influence individuals' behaviors related to hygiene and sanitation, further exacerbating the risk of diarrheal diseases. Compared to other Puskesmas, the one in South Atambua had a very high number of diarrhea cases in 2021—up to 88 incidents among toddlers, according to Belu District Health Office statistics. This study aimed to identify variables associated with mothers' conduct when treating their toddler's diarrhea. This kind of cross-sectional, quantitative analysis was carried out in Atambua Selatan, employing a sample size of 72 participants and a simple random sampling technique. The Chi-Square statistical test was utilized in both univariate and bivariate data analysis. The findings indicated that while education level had no association with mothers' behavior in managing the incidence of diarrhea among newborns, knowledge and family support did ( $p$ -value = 0.000) have a relationship with maternal behavior in handling diarrhea in toddlers. Otherwise, mothers' behaviors regarding diarrhea among toddlers were not correlated with their level of education. In the future, health officers are expected to provide information on how to deal with diarrhea among toddlers regularly and involve other family members to support mothers. The collaborative efforts of health officers and family members are essential in safeguarding toddlers' health and well-being during diarrhea episodes.

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## 1. Introduction

Diarrhea is a condition where the body experiences an increase in the volume, looseness, and abnormal frequency of defecation, i.e., more than 3 times among adults and more than 4 times among newborns without the presence of blood in the stool [1]. Effective treatment of diarrhea can minimize its severity. However, when there is a failure in early diagnosis and treatment, it may result in dehydration [2]. Diarrhea can be overcome by maintaining cleanliness and cooking healthily and hygienically with good hygiene practices, including handwashing with soap, have been shown to

prevent to diarrhea [3]. Therefore, mothers must prevent and deal with diarrhea immediately and effectively to minimize morbidity [4].

According to the data from the Health Profiles of East Nusa Tenggara Province, there were 29.88% diarrhea cases in 2018, 12.7% in 2019, and increasing to 19.9% in 2020 [5]. Meanwhile, the data from the Health Office of Belu Regency regarding the prevalence of diarrhea between 2018 and 2020 showed 2,424 patients in 2018, then decreased to 1,861 in 2019, and increased to 4,567 in 2020. The South Atambua Health Centre recorded a relatively high prevalence of diarrhea, with 228 cases in 2020, decreasing to 88 in 2021 for diarrhea cases among toddlers. Although the diarrhea figures of Belu Regency indicated a decrease, the figure of South Atambua was still relatively high and should be managed immediately [6].

Proper handling of diarrhea would minimize its level of severity [7]. Diarrhea can be overcome by maintaining cleanliness and cooking healthily and hygienically hence mothers are advised to prevent and deal with diarrhea immediately and effectively to minimize morbidity and mortality rates [8–10]. The risk factors contributing to the emergence of diarrhea include people's behavior, lack of knowledge on diarrhea, level of education, and economic status [11]. Maternal factors also play roles in the prevalence of diarrhea among toddlers. Mothers are the figures closest to toddlers. One important knowledge for mothers is how to treat toddlers with diarrhea by preventing and dealing with dehydration by giving substitute liquids [8,12,13].

According to other study that diarrhea incidence is influenced by mother's level of education. Mothers' perspectives on child care, particularly the prevention of diarrhea, will change as a result of their increased education [14]. Social support is assistance or support that can be obtained from trusted people, including family members such as husbands, parents, and closest persons. This is consistent with a study conducted by Nida and Qomarudin that there was a correlation between family support and diarrhea prevention measures among toddlers. Social support and surrounding environments could affect preventive behaviors in the form of providing a feeling of comfort, attention, appreciation, or other kinds of help [15]. Considering this information, the researchers deemed it important to conduct a study on the maternal behavioral factors about the handling of diarrhea prevalence among toddlers in South Atambua Health Center.

## **2. Method**

The study was quantitative, employing a cross sectional design, conducted in the work area of South Atambua Health Center. As many as 88 respondents were mothers with toddlers suffering from diarrhea during 2021 to be selected as the research population. The samples were determined according to the formula by Murti (2016), Lemeshow (1990) [16]. Based on the calculation, as many as 72 mothers of toddlers were selected using a simple random sampling technique with Microsoft Excel by applying an arbitrary formula. The dependent variable of the research was the mothers' behavior in dealing with the prevalence of diarrhea. In contrast, the independent variables consisted of knowledge, level of education, and support from families. The data were collected through interview sessions. The instruments applied for the research were a questionnaire. The questionnaire consisted of respondent characteristics. There were 15 questions for the knowledge variable, 10 for the family support, and 10 for the handling behavior variable. The data were analyzed using the Chi-square test. The results of the analysis will be presented in tables and narrative descriptions.

### 3. Results and Discussion

#### 3.1. Results

The study was conducted in the work area of the Health Center of South Atambua, the Regency of Belu. There were as many as 72 respondents to be included in the research analysis. Based on the age category, most toddlers were in the 44-57 months age group (36.11%). Further, most of the toddlers were female (51.39%).

**Table 1.** Characteristics of Toddlers in the Work Area of South Atambua Health Center

	Characteristics	Frequency	Percentage (%)
<b>Age</b>	16-29 months	20	27.78
	30-34 months	18	25
	44-57 months	26	36.11
	≥ 58 months	8	11.11
<b>Gender</b>	Female	37	51.39
	Male	35	48.61
<b>Total</b>		72	100

The respondents of the study were mothers who had toddlers with diarrhea. Based on the age category, most of the respondents were in the age range of 31-40 years (41.67%). Whereas, based on the educational level category, most graduated from senior high schools (44.44%). Further, based on the occupation category, most respondents were housewives (87.50%).

**Table 2.** Characteristics of Respondents in the Work Area of South Atambua Health Center

	Characteristics	Frequency	Percentage (%)
<b>Age</b>	20-30 years	30	41.67
	31-40 years	33	45.83
	41-50 years	9	12.50
<b>Level of Education</b>	Elementary School	21	29.17
	Junior High School	14	19.44
	Senior High School	32	44.44
	Non-Degree of 3 Years	3	4.17
	Bachelor	2	2.78
<b>Occupation</b>	Housewife	63	87.50
	Farmer	5	6.94
	Self-Employed	3	4.17
	Teacher	1	1.39
<b>Total</b>		72	100

Table 3 shows that mothers with proper (good) handling behavior of diarrhea were those with good knowledge (23.61%), showing better performance than those with lack of (or insufficient) knowledge (12.50%). Meanwhile, mothers with improper (bad) handling of diarrhea mainly were those with insufficient knowledge (54.17%), showing a higher score than those with good knowledge (09.72%). The analysis using the Chi-square test resulted in a p-value of  $0.000 < 0.05$  and a prevalence ratio [POR] of 10.524, with a 95% trust interval of 3.365-32.912, indicating that there was a significant correlation between the mothers' knowledge and their behavior in handling toddlers' diarrhea within the work area of South Atambua Health Center during 2023.

The table shows that mothers with good behaviors of handling diarrhea gained more support from good families (30.56%) compared to those with less family support (05.56%). Whereas, mothers with less (insufficient) behavior of handling diarrhea gained less family support (38.89%) compared to good family support (25.00%). The statistical test using Chi-square resulted in a p-value of  $0.000 < 0.05$  and a prevalence ratio (POR) of 8.556, with 95% trust interval of 2.529-28.946 indicating that there was a significant correlation between family support and mothers' behavior in handling diarrhea among toddlers within the work area of the Health Center of South Atambua, the Regency of Belu, during 2023.

**Table 3.** Factors Associated with Mothers' Behavior in Handling Prevalence of Diarrhea among Toddlers

Variable		Mothers' Behavior in Handling Prevalence of Diarrhea			P-value	POR (95% CI)
		Good	Less	Total		
		n (%)	n (%)	n (%)		
Knowledge	Good	17 (23.61)	7 (09.72)	24 (33.33)	0.000	10.524 (3.365-32.912)
	Less	9 (12.50)	39 (54.17)	48 (66.67)		
Family Support	Good	22 (30.56)	18 (25.00)	40 (55.56)	0.000	8.556 (2.529-28.946)
	Less	4 (05.06)	28 (38.89)	32 (44.44)		
Level of Education	High	17 (23.61)	18 (25.00)	35 (48.61)	0.099	2.274 (0.850-6.084)
	Low	9 (12.50)	28 (38.89)	37 (51.39)		

The table shows that more mothers with good handling behavior of diarrhea had a higher level of education (23.61%), compared to those with lower level of education (12.50%). Whereas, more mothers with less handling behavior of diarrhea had a lower level of education (38.89%), compared to those with higher education (25%). The statistical test using Chi-square resulted in a p-value of  $0.000 < 0.05$  and a prevalence ratio (POR) of 2.274, with 95% trust interval of 0.850-6.084, indicating that there was a significant correlation between the level of education and mothers' behavior in handling diarrhea among toddlers within the work area of the Health Center of South Atambua, the Regency of Belu, during 2023.

### 3.2. Discussion

Some factors associated with mothers' behaviors in handling diarrhea prevalence among toddlers were knowledge, family support, and level of education. These factors will be explained in the following sections.

#### a. Knowledge

The research results showed that many mothers still had insufficient (less) knowledge on diarrhea. It was found that most of the mothers did not give zinc supplements to their toddlers. In contrast, those who gave the zinc supplements did it without following the recommendation where the provided ten tablets of the zinc supplement were not completely consumed. Some mothers did not know what diarrhea was, how to prevent it, and the causes. The results were consistent with a study showing that several mothers did not know how to prevent diarrhea or manage early handling of toddlers with diarrhea [17].

A low level of education among mothers would make them incapable of preventive efforts or treating toddlers with diarrhea [18]. Given that several of the women who participated only completed elementary school, it is possible that their poor educational attainment was the primary cause of their inadequate knowledge. A prior study conducted in Sudan found that mothers' are not well-informed about the symptoms and signs of diarrhea [19,20]. Higher education would normally affect preventive efforts and awareness of healthy lifestyles [21]. The more knowledge a person has on the consequences of a disease, the more effort the person will make to prevent it [22]. Hence, it is expected that the health officers will take the initiative to provide regular information on handling toddlers' diarrhea and conduct health education to mothers on the importance of improving knowledge and practices in dealing with toddlers' diarrhea.

#### b. Family Support

The research results show a correlation between family support and mothers' behavior in handling diarrhea since families frequently provided helps to mothers, and sometimes provided information about diarrhea to the mothers, but never motivated the mothers of toddlers. The

respondents with insufficient family support would have insufficient (or less) behavior in dealing with diarrhea among toddlers, in other words, family support and behavior play a crucial role in managing toddler diarrhea [8].

Family support plays a crucial role in how mothers handle diarrhea in children. Previous studies show the effect of family empowerment through psychoeducation on family support in treating children under 5 with diarrhea [23]. The value of a multimodal, holistic approach that includes moms in particular in the prevention, early detection, and treatment of diarrhea in children. Additionally, there is a substantial correlation between family size and diarrhea in children under five, showing the influence of family dynamics on the health of young children. Diarrhea preventive methods have also been connected to factors like family size, occupation, and caregiver awareness. The load on the health system can be decreased by identifying environmental risk factors and educating parents about preventing diarrhea [24–27]. Therefore, family support is required, a mother with insufficient support from the family would tend to perform less optimally in dealing with diarrhea among toddlers. In contrast, those with family support tend to perform better when dealing with diarrhea among toddlers.

### **c. Level of Education**

The research results show no significant correlation between the level of education and mothers' behavior in dealing with diarrhea among toddlers. This study shows that the level of education does not guarantee someone's good handling behavior, since a person with high education would not necessarily be good in doing a proper handling and having high level of awareness about his/her health as well as the family health to attend health service centers [21]. Previous study show that the prevalence of diarrhea in children is significantly influenced by maternal knowledge, and women who possess both high levels of education and information will be better equipped to safeguard their offspring [28]. The risk of diarrhea in children under five years old is 1.127 times higher in those whose mothers' have lower education than in those whose mothers have higher education [29].

Education is a key component of the withdrawal process and can help someone become more intellectually mature. Knowledge, sharpen perceptions, and develop thought processes that in turn give perceptions of knowledge, perceptions, and attitudes that influence someone's decision to take action. The more data gathered from the education, the more knowledge regarding diarrheal illnesses was acquired [30]. A lack of understanding and awareness among the people concerning health issues and diseases might result in difficulties identifying diseases occurring within a community [31]. Therefore, it is expected that there will be some initiatives (efforts) by health officers to improve people's awareness of health and diseases since those with high levels of education would not necessarily conduct proper handling and have a high awareness of health issues.

## **4. Conclusion**

The results of this study show a correlation between mothers' knowledge and their behavior in handling diarrhea among toddlers within the work area of the Health Center of South Atambua, Belu Regency. There was also a correlation between family support and mothers' behavior in handling diarrhea among toddlers within the work area of the Health Center of South Atambua, Belu Regency during 2023. However, there was no correlation between the level of education and mothers' behavior in handling diarrhea among toddlers within the work area of the Health Center of South Atambua, Belu Regency, in 2023. Health officers play a crucial role in ensuring the well-being of toddlers by offering regular guidance on managing diarrhea effectively. This includes educating parents and caregivers on proper hygiene practices, such as handwashing and safe food preparation, to prevent the spread of diarrheal illnesses.

## **Acknowledgment**



The authors would like to extend gratitudes to all the parties who have provided help during the process of the research, especially to the people within the work area of South Atambua Health Center who have spent their time so that the authors could complete the research.

### Conflict of Interest

The authors hereby confirm that no conflict of interest exists to influence the execution of the research.

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