

Literature Review: The Relationship Between Mothers' Knowledge of Diarrhea and Diarrhea Prevention Behaviors in Toddlers

Ni Nyoman Sutiari*, Cici, Siti Hartina, Sudirman, Ahmad Yani

Universitas Muhammadiyah Palu, Indonesia

Email: ninyomansutiari16@gmail.com*

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Abstract

Diarrhea remains a major health problem in toddlers, contributing to high rates of child morbidity and mortality. Diarrhea prevention behavior in toddlers is strongly influenced by the mother's role as the primary caregiver, especially the mother's level of knowledge about diarrhea. This research aims to analyze the relationship between the mother's level of knowledge about diarrhea and diarrhea prevention behavior in toddlers based on the results of previous studies. This study uses the Systematic Literature Review (SLR) method with the PRISMA approach. Articles were searched in PubMed, ScienceDirect, and Google Scholar using keywords on maternal knowledge, diarrhea, and prevention behavior in toddlers with Boolean operators (AND/OR). Inclusion criteria included quantitative, qualitative, or mixed-methods studies published from 2020–2025, full-text, and addressing the relationship between maternal knowledge and diarrhea prevention or incidence. Fifteen eligible articles were analyzed descriptively. The results of the study showed that maternal knowledge levels were significantly associated with diarrhea prevention behaviors, diarrhea management practices, the implementation of clean and healthy living behaviors (PHBS), and the incidence of diarrhea in toddlers. Mothers with good knowledge levels tended to implement more optimal prevention behaviors and had toddlers with a lower risk of diarrhea. However, the effectiveness of knowledge implementation is influenced by maternal characteristics, socioeconomic conditions, and sanitation availability. Maternal knowledge plays a crucial role in preventing diarrhea in toddlers through preventive behaviors and reducing its incidence. Thus, sustainable health education supported by adequate sanitation and environmental conditions must be improved to reduce diarrhea incidence in toddlers.

INTRODUCTION

Diarrhea remains one of the major health problems among toddlers and contributes significantly to child morbidity and mortality rates. (Walker et al., 2021) stated that diarrhea is a leading cause of morbidity among children under five years of age, especially in developing countries that still face limited access to clean water, inadequate environmental sanitation, and low implementation of clean and healthy living behaviors at the household level. This condition indicates that diarrhea remains a serious challenge in efforts to improve children's health status.

Globally, diarrhea remains a major concern in child health. The World Health Organization (2023) reports that diarrhea is among the top ten causes of death among toddlers worldwide, with major risk factors including poor hygiene practices, unsafe drinking water, and inadequate sanitation management. The report emphasizes the importance of behavior-based prevention efforts at the family level.

In Indonesia, the incidence of diarrhea among toddlers remains high in various regions. Based on data published by the Ministry of Health of the Republic of Indonesia (2024), diarrhea is consistently included among the top ten most common diseases affecting toddlers reported by healthcare facilities. This finding shows that despite various prevention programs, efforts to control diarrhea among toddlers still require continuous strengthening.

Toddlers are an age group that is highly susceptible to diarrhea because their immune systems have not yet developed optimally. UNICEF (2022) explained that toddlers' limited ability to maintain personal hygiene causes them to depend heavily on parental care in meeting basic needs and preventing infectious diseases, including diarrhea. This dependence makes the family environment an important factor in preventing diarrhea among toddlers.

Within the family environment, mothers play a highly dominant role in childcare and caregiving. (Sari et al., 2022) states that mothers, as primary caregivers, have a major responsibility in determining hygiene practices, food preparation, beverage provision, and household sanitation management. Maternal behaviors that are inconsistent with health principles can increase the risk of diarrhea among toddlers.

One of the factors affecting maternal behavior in diarrhea prevention is the level of knowledge. (Notoatmodjo et al., 2021) explained that knowledge is a cognitive domain that forms the basis for the development of a person's health attitudes and behaviors. Mothers who possess good knowledge of diarrhea, including its causes, modes of transmission, signs and symptoms, and prevention measures, tend to be better able to implement appropriate preventive behaviors.

Recent studies have shown that maternal knowledge levels are associated with diarrhea prevention behaviors among toddlers. (Rahmawati et al., 2023) found that mothers with a high level of knowledge were more consistent in implementing handwashing with soap, using clean water, preparing hygienic food, and utilizing sanitary latrines compared to mothers with lower levels of knowledge.

Similar results were also reported by (Putri et al., 2024), who stated that mothers with an adequate understanding of diarrhea demonstrated better clean and healthy living behaviors in daily life. However, the study also emphasized that good knowledge is not always followed by optimal practices because of the presence of other supporting and inhibiting factors. Lestari et al. (2022) revealed that educational factors, socioeconomic conditions, culture, and access to information and healthcare facilities can affect mothers' ability to implement diarrhea prevention behaviors. These factors may create a gap between the knowledge possessed by mothers and the preventive behaviors practiced within the household.

Based on the differences in research findings and diverse regional characteristics, further studies are needed regarding the relationship between maternal knowledge of diarrhea and diarrhea prevention behaviors among toddlers. (Wijaya et al., 2025) emphasized that contextual research is essential as a basis for planning more effective health promotion and educational interventions to enhance the role of mothers and reduce the incidence of diarrhea among toddlers.

Therefore, this study aims to analyze the relationship between mothers' level of knowledge regarding diarrhea and diarrhea prevention behaviors among toddlers based on a systematic review of previous studies published between 2020 and 2025. The specific objectives are to identify patterns of association between maternal knowledge and various

aspects of diarrhea prevention, including preventive behaviors, diarrhea management practices, implementation of *Perilaku Hidup Bersih dan Sehat (PHBS)*, and the incidence of diarrhea among toddlers. This research is expected to provide both theoretical and practical benefits. Theoretically, this study contributes to the development of health promotion and behavioral sciences, particularly regarding the role of maternal cognition in preventing infectious diseases in children. Practically, the findings may serve as a reference for healthcare workers, public health program planners, and policymakers in designing more effective health education interventions targeting mothers of toddlers. Additionally, the results may inform the development of sustainable health promotion strategies that address not only knowledge enhancement but also supporting environmental and sanitation factors, ultimately contributing to the reduction of diarrhea-related morbidity and mortality among toddlers in Indonesia and other developing countries.

METHOD

This study used secondary data through the Systematic Literature Review (SLR) method, which aimed to examine the relationship between the level of maternal knowledge about diarrhea and diarrhea prevention behaviors among toddlers. The process of conducting the SLR was carried out in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines to ensure that the processes of literature searching, selection, and reporting were conducted systematically and transparently. This approach was chosen to obtain a comprehensive understanding based on the findings of previous relevant and up-to-date studies.

Article searches were conducted through several scientific databases, namely PubMed, ScienceDirect, and Google Scholar. The keywords used included “maternal knowledge,” “diarrhea,” “diarrhea prevention,” “toddler,” “maternal knowledge,” and “diarrhea prevention behavior,” which were combined using Boolean operators (AND/OR). The inclusion criteria consisted of quantitative, qualitative, or mixed-methods research articles published between 2020 and 2025, available in full text, and discussing the relationship between maternal knowledge of diarrhea and diarrhea prevention behaviors among toddlers. Articles that were irrelevant, duplicated, did not present empirical data, or were not fully accessible were excluded from the selection process.

Articles that met the criteria were then analyzed and synthesized descriptively. The analysis was conducted by examining the characteristics of the studies, study designs, variables investigated, and the main findings related to the relationship between maternal knowledge levels and diarrhea prevention behaviors among toddlers. Based on the selection results from several databases, 15 articles that met the criteria were obtained and further analyzed to identify relationship patterns and general conclusions relevant to the research objectives.

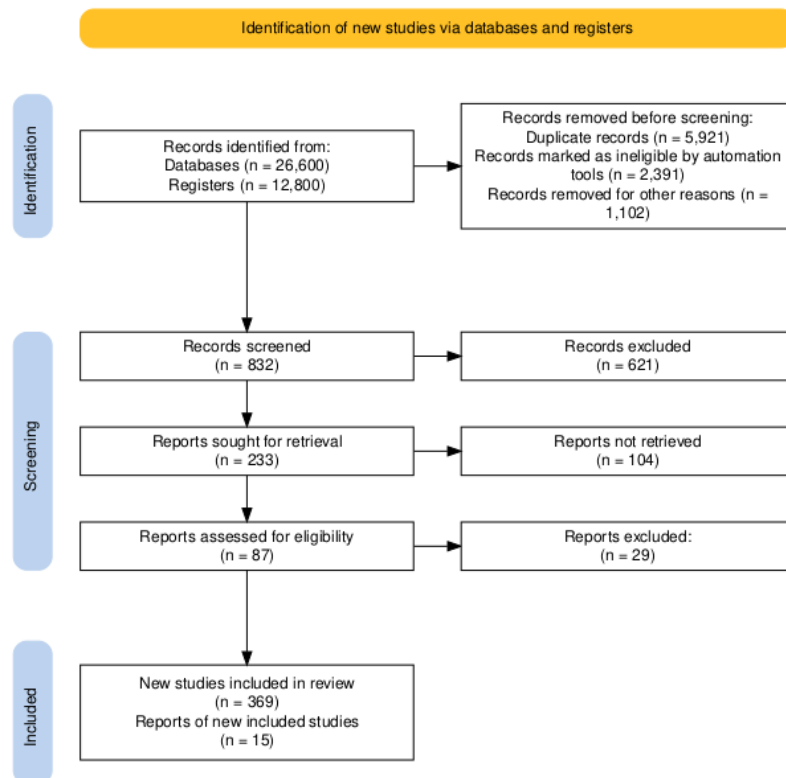


Figure 1 Prism Flow Diagram

Source: Adapted from Page MJ, McKenzie JE, Bossuyt PM, et al. (2021)

RESULTS AND DISCUSSIONS

The results of the search and literature review were obtained as many as 15 journals that discussed the relationship between the level of maternal knowledge about diarrhea and preventive behavior and the incidence of diarrhea in toddlers. Based on thematic synthesis, the journals were grouped into several main themes, namely the relationship between the level of knowledge of mothers and the behavior of diarrhea prevention in toddlers (4 journals), the relationship between the level of knowledge of mothers and the incidence of diarrhea in toddlers (5 journals), the relationship between maternal knowledge and practices of diarrhea management and self-medication (2 journals), the relationship between maternal knowledge and the implementation of clean and healthy living behaviors (PHBS) that contribute to the prevention of diarrhea (2 journals), and the relationship between maternal knowledge and diarrhea prevention attitudes and measures (2 journals). Overall, the results of the fifteen journals show that the level of maternal knowledge has an important role in shaping attitudes, behaviors, and measures to prevent diarrhea, as well as being related to reducing the risk of diarrhea in toddlers, so that increasing maternal knowledge through health education is an important strategy in efforts to prevent diarrhea in toddlers.

Table 1. Summary of 15 Articles on Maternal Knowledge and Diarrhea Prevention in Toddlers

No.	Author & Year	Research Title	Research Design	Variables Studied	Key Results
1	Nursia Aja et al., 2021	Overview of the Level of Knowledge of	Descriptive	Maternal knowledge,	The majority of mothers with good

		Mothers on Diarrhea Prevention Behavior in Toddlers in the Working Area of the Kalumpang Health Center		diarrhea prevention behavior	knowledge show better diarrhea prevention behaviors
2	Made Deva Kharisma et al., 2022	The Relationship of Mothers' Knowledge Level to the Incidence of Diarrhea in Toddlers at the Putri Ayu Health Center, Jambi City in 2022	Cross-sectional	Maternal knowledge, incidence of diarrhea	There was a significant relationship between maternal knowledge level and the incidence of diarrhoea
3	- Stuart O'Neill et al., 2022	The Relationship between Mother's Knowledge Level and Diarrhea Management Practices in Toddlers	Cross-sectional	Maternal knowledge, diarrhea management practices	Maternal knowledge related to proper diarrhea management practices
4	Jumesy Milianie et al., 2022	The Relationship of Knowledge Level and Maternal Behavior on Diarrhea Prevention In Children at the Jekan Raya Health Center in Palangka Raya City in 2022	Cross-sectional	Maternal knowledge, preventive behavior	Maternal knowledge affects diarrhea prevention behaviors
5	Ainun Wulandari & Suci Madhani, 2022	The Relationship between Knowledge Level and Maternal Behavior in Diarrhea Self-Medication in Toddlers in Jagakarsa	Cross-sectional	Maternal knowledge, self-medicated behavior	Mother's knowledge is related to the accuracy of diarrhea self-medication
6	Ayu Nindi Cahyani NA et al., 2022	The Relationship between Knowledge Level and Attitudes About Clean and Healthy Living Behaviors (Phbs) and the Incidence of Diarrhea in School-Age Children	Cross-sectional	PHBS knowledge, attitudes, incidence of diarrhea	PHBS knowledge and attitudes related to the incidence of diarrhoea
7	Siti Fatimah, 2024	The Relationship between the Level of Knowledge of Toddler Mothers and the Incidence of Diarrhea in Toddlers	Cross-sectional	Maternal knowledge, incidence of diarrhea	Mothers with low knowledge have toddlers with a higher risk of diarrhea
8	Muhammad Dicky Firenza et al., 2022	The Relationship between Maternal Knowledge and Clean and Healthy Living Behavior (Phbs) with the incidence of diarrhea in toddlers in Pusong Lhokseumawe Village	Cross-sectional	Maternal knowledge, PHBS, incidence of diarrhea	Maternal knowledge and PHBS related to the incidence of diarrhea

9	Vierto Irennius Girsang, 2021	The Relationship of Mother's Knowledge and Attitude with Diarrhea Prevention Measures in Toddlers	Cross-sectional	Knowledge, attitudes, precautions	Mother's knowledge and attitudes influence diarrhea prevention measures
10	Yenti Febrianti et al., 2022	The Relationship Between Knowledge, Attitudes, and Characteristics with Maternal Behavior in the Prevention of Diarrhea in Toddlers in the Working Area of the Beringin Raya Health Center, Bengkulu City in 2022	Cross-sectional	Knowledge, attitudes, characteristics, behavior	Knowledge is a dominant factor in preventive behavior
11	Esra Rusdamayanti Silaen et al., 2021	Mother's Knowledge Level About Diarrhea in Toddlers at Ridos Clinic in 2021	Descriptive	Mother's knowledge	Most mothers have a moderate to good level of knowledge
12	David Siahaan et al., 2021	The relationship between the level of knowledge and behavior about hygiene and the incidence of acute diarrhea	Cross-sectional	Knowledge, hygiene, incidence of diarrhea	Hygiene knowledge and behavior related to the incidence of diarrhea
13	- Farida Utaminingtyas et al., 2020	The Relationship of Mother's Knowledge and Attitude with the Incidence of Diarrhea in Toddlers in the Children's Room of Padangsidempuan City Hospital in 2020	Cross-sectional	Knowledge, attitudes, occurrence of diarrhea	Maternal knowledge and attitudes are significantly related to the incidence of diarrhea
14	Muhamad Gio Juliansyah et al., 2021	The Relationship between the Level of Knowledge of Maternal Diarrhea and the Incidence of Diarrhea in the Work Area of the Cikidang Health Center	Cross-sectional	Maternal knowledge, incidence of diarrhea	Mother's knowledge is related to the incidence of diarrhea in toddlers
15	Saska Hanifah Nurrahma et al., 2025	The Relationship of Knowledge Level with Attitudes and Behaviors of Parents in Sronдол Kulon Banyumanik Village, Semarang on Diarrhea in Toddlers	Cross-sectional	Knowledge, attitudes, behaviors	Knowledge influences attitudes and behaviors to prevent diarrhea

Source: Researcher's own work based on systematic literature review of 15 eligible articles from PubMed, ScienceDirect, and Google Scholar, 2025

The results of studies from several journals show that the level of maternal knowledge is closely related to diarrhea prevention behavior in toddlers. Research conducted by (Nursia Aja

et al., 2021); (Jumesy Milianie et al., 2022); (Vierito Irennius Girsang, 2021) shows that mothers with a good level of knowledge tend to have more optimal diarrhea prevention behaviors, such as washing hands with soap, maintaining the cleanliness of food and drinks, and paying attention to the sanitation of the home environment. These findings confirm that knowledge is an important factor in shaping maternal health behavior in preventing diarrhea in toddlers.

In addition to preventive behaviors, some journals also emphasize the relationship between maternal knowledge level and the incidence of diarrhea in toddlers. (Made Deva Kharisma et al., 2022); (Siti Fatimah, 2024); (Muhamad Gio Juliansyah, 2021); (Farida Utaminingtyas et al., 2020) reported that toddlers who were cared for by mothers with low knowledge had a higher risk of diarrhea incidence. This shows that the mother's lack of understanding of the causes and prevention of diarrhea can have a direct impact on the health status of toddlers.

Maternal knowledge has also been proven to have an effect on the practice of diarrhea management and self-medication. (Rosiana Putri Utami et al., 2022) found that mothers with a good level of knowledge were better able to manage diarrhea appropriately, including giving oralite and monitoring signs of dehydration. Similar results were also reported by Ainun (Wulandari and Suci Madhani, 2022), which showed that maternal knowledge is related to the accuracy of diarrhea self-medication in toddlers, so that it can prevent further complications.

Several journals associate the level of knowledge of mothers with the implementation of clean and healthy living behaviors (PHBS) as an effort to prevent diarrhea. Ayu Nindi Cahyani NA et al. (2022) and Muhammad Dicky Firenza et al. (2022) show that mothers with good knowledge of PHBS are more consistent in implementing hygienic habits, such as washing hands, maintaining environmental cleanliness, and managing household waste. Good implementation of PHBS has been proven to contribute to reducing the incidence of diarrhea.

CONCLUSION

Based on the results of the Systematic Literature Review of 15 journals discussing the relationship between maternal knowledge of diarrhea and diarrhea prevention behaviors among toddlers, it can be concluded that maternal knowledge has a significant association with preventive behaviors and the incidence of diarrhea in toddlers. Mothers with higher levels of knowledge tended to implement more effective diarrhea prevention measures, including clean and healthy living behaviors, appropriate diarrhea management, and better decision-making related to child health. However, the findings also indicated that knowledge alone did not fully guarantee optimal preventive behaviors, as other factors such as maternal characteristics, socioeconomic conditions, availability of sanitation facilities, environmental support, and access to healthcare services also influenced the effectiveness of diarrhea prevention practices. Therefore, efforts to improve maternal knowledge should be accompanied by strengthening environmental sanitation and healthcare support systems to reduce diarrhea incidence effectively and sustainably. Future research is recommended to explore the influence of socioeconomic, cultural, and environmental factors on the relationship between maternal knowledge and diarrhea prevention behaviors through broader and more diverse population-based studies.

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