

Mothers' Knowledge and Home-Based Practices for Preventing Diarrhea in Children Under Five: A Descriptive Study in Kerbela Pediatric Teaching Hospital, Iraq

Qasim Kadhim Ashour^{1*}, Mohammed Kadhim Saadoon¹, Hasan Saud Abdul Hussein¹, Enas Ahmed Abdel Karim²

¹ Department Pediatric Nursing, College of Nursing, University of Kerbala, Kerbala, Iraq

² Department of Pediatric Nursing, College of Nursing, University of Al-Qadisiyah, Al-Diwaniyah, Iraq

Received: 16 Sep. 2025; Accepted: 21 Feb. 2026

Abstract- Diarrheal disease: It is frequently unknown how often bacteria cause diarrhea when assessed in ambulatory settings. We attempted to develop criteria for bacterial culture and identify the microbiological causes of diarrhea in a clinic that primarily serves immigrant children and in a private pediatric practice. Diarrhea is often caused by infections, food intolerance, digestive disorders, or contaminated water and food. It can lead to dehydration, especially in young children and the elderly, making proper hydration and medical attention crucial in severe cases. A descriptive cross-sectional design was utilized. The study was conducted from 15 June 2024 to 13 August 2024. A non-probability (convenience) sample of 100 mothers of children under five years of age was selected. Data were collected via a questionnaire assessing mothers' knowledge. The data were described statistically and analyzed using descriptive and inferential statistical procedures. The findings of the present study indicate that mothers demonstrated a moderate level of knowledge and practice related to diarrhea prevention, with 47.5% of participants falling within the moderate range. The level of mothers' knowledge and practice showed a significant association with their educational level. However, the results section should include additional statistical details—such as mean scores, standard deviations, and *P*—to fully support the reported associations. The study concludes that mothers' responses across the assessed domains were significantly associated with both their educational level and their children's sociodemographic characteristics. Based on these findings, it is recommended that community-based diarrhea prevention programs adopt a mother's self-efficacy assessment scale to identify perceived risks and to design targeted interventions aimed at strengthening and sustaining diarrhea prevention behaviors at the household level.

© 2026 Tehran University of Medical Sciences. All rights reserved.

Acta Med Iran 2026;64(5):280-285.

<https://doi.org/10.18502/acta.v64i5.22211>

Keywords: Mothers' knowledge; Home-based care; Diarrhea

Introduction

Diarrhea is one of the leading causes of illness and mortality in infants and children worldwide and can indicate a number of different disorders (1). The passage of loose stools, often accompanied by more frequent bowel movements, is known as diarrhea (2). An estimated 1.7 billion cases of diarrhea and 1.87 million deaths among children under five years of age occur annually, with an average of 2.9 episodes per child (3). Ingestion of

various bacteria, viruses, or parasites can result in diarrhea. Most cases of diarrhea are caused by *Shigella*, Rotavirus, *Cryptosporidium*, and enterotoxigenic *E. coli* (4). Young age, low socioeconomic status (SES), low maternal literacy, having siblings under five years of age living in the home, low birth weight, inadequate breastfeeding, malnutrition, poor sanitation, and poor maternal hygiene practices are all linked to a higher prevalence of diarrheal diseases in young children (5).

Corresponding Author: Q. Kadhim Ashour

Department Pediatric Nursing, College of Nursing, University of Kerbala, Kerbala, Iraq
Tel: +964 781 853 0533, E-mail address: Qasim.k@uokerbala.edu.iq

Copyright © 2026 Tehran University of Medical Sciences. Published by Tehran University of Medical Sciences

This work is licensed under a Creative Commons Attribution-NonCommercial 4.0 International license (<https://creativecommons.org/licenses/by-nc/4.0/>). Non-commercial uses of the work are permitted, provided the original work is properly cited

Importance of study

Diarrhea is a global health concern for children under five years of age and leads to approximately 1.9 million deaths annually (6). It is the second most common cause of death among children under five worldwide, accounting for 700,000 to 800,000 preventable deaths, most of which occur in rural and suburban areas of low-income countries. A correct understanding of the disease processes is crucial for preventing and reducing its prevalence (7).

Historical background of diarrhea

The term “diarrhea” originates from a Greek word meaning “to flow through” (8). Infectious diarrhea has historically been associated with crowding, poor hygiene, and war. Although cases of infectious diarrhea have been documented since the earliest records of civilization, effective preventive measures were not frequently or consistently implemented until the modern era of active public health promotion. Advances in understanding its etiology and treatment have improved the prognosis; however, outbreaks still require constant vigilance to prevent public health crises (9).

Cause and risk factor of diarrhea

The current environmental conditions, available logistics, and the educational level of parents and/or caregivers are the primary factors that should be taken into account. Complaints of diarrhea should be taken seriously. Numerous factors can cause diarrhea, especially in young children. Children lose fluids quickly; therefore, the cause may be bacterial, viral, or other infections, and it can be life-threatening (6).

Furthermore, when diarrheal illness is exacerbated by poor personal hygiene, it can spread from person to person. Another significant cause of diarrhea is the preparation or storage of food under unhygienic conditions. Inadequate domestic water management and storage are also major risk factors. The disease may also affect individuals who consume fish and seafood from contaminated water (10,11).

Type of diarrhea

Based on its duration, diarrhea can be divided into three categories: acute, persistent, and chronic. This classification is crucial for both diagnosis and therapy (6).

Complication of diarrhea

Children under five years of age experience acute diarrhea an average of three times per year. Children in this age group have the highest incidence of, and risk of

death from, diarrheal illnesses, particularly during infancy; rates then progressively decline. After pneumonia, acute diarrhea is the second most common cause of death in this age group globally. Other direct consequences of diarrhea among children in low-resource countries include malnutrition, impaired growth, and reduced cognitive development (12).

Management of diarrhea

Management should be based on nursing assessment. It includes a thorough physical examination, an appropriate medical history, and an evaluation of dehydration. The type and frequency of stools, the duration of the disease, and any associated symptoms must be evaluated in order to develop the nursing diagnosis (13).

The Centers for Disease Control and Prevention (CDC) was the first to emphasize the crucial use of oral therapy for the maintenance and rehydration of children with dehydrating diarrhea in the United States, as well as for nutritional support. The CDC believes that treating acute diarrhea in children can dramatically reduce national hospitalization and pediatric mortality rates because of the common and potentially dangerous nature of diarrhea (6).

Prevention of diarrhea

Diarrhea is one of the main causes of death among children under five years of age. However, it can be prevented by adhering to good health practices. The following are some crucial actions to prevent diarrhea in children: drinking safe water, as contaminated water contributes to the spread of diarrhea; therefore, it is recommended to use clean, safe water sources for cooking and drinking. Frequent hand washing is one of the best strategies for preventing diarrhea; hands should be washed with soap and water before eating and after using the restroom. Exclusive breastfeeding is recommended by the World Health Organization during the first six months of a child's life, as it strengthens immunity and reduces the risk of diarrhea. Rotavirus vaccination is effective in preventing diarrhea caused by this virus, and it is recommended that children receive it according to the national immunization schedule. Food hygiene should be maintained by thoroughly washing fruits and vegetables, properly cooking food, and avoiding food from unreliable sources or street vendors. Safe food storage is also important; food should be stored at appropriate temperatures and should not be left out for long periods to prevent bacterial growth. In areas lacking clean water sources, household water treatment methods,

such as boiling or using filters, can help ensure water safety (14).

Materials and Methods

Design of the Study

A descriptive cross-sectional quantitative study design was used to assess mothers' knowledge of home-based care for preventing diarrhea among children under 5 years of age at Kerbela Pediatric Teaching Hospital. The present study was carried out to achieve the previously stated objectives. The study was conducted from 15 June 2024 to 13 August 2024.

Setting of the study

The current study was conducted at Kerbela Pediatric Teaching Hospital.

The sample of the study

Non- probability "convenience" sample of (100) mothers of children under five years from the Kerbela pediatric teaching hospital when they accompanied their children at the time of attending the hospital.

Methods of data collection

Data were collected using the developed questionnaire and a structured interview technique. An assessment tool was developed by the researcher to assess mothers' attitudes regarding home-based care for preventing diarrhea among children under 5 years of age. The Arabic version of the questionnaire was used, and all participants included in the study sample were interviewed in a similar manner using the same questionnaire. Each participant spent approximately 4–10 minutes completing the interview. Data were collected from 15 June 2024 to 13 July 2024.

Results

A total of 100 mothers of children under five years of age were enrolled in this study. The sociodemographic profile of the participants is detailed in Table 1. More than half of the mothers belonged to the 20–25 age group ($n = 53$, 52.5%), followed by the 26–30 age group ($n = 26$, 25.6%). Regarding occupation, the vast majority of the participants were housewives ($n = 81$, 80.2%), while

only 19.8% ($n = 19$) were employed. In terms of educational attainment, 28.7% ($n = 29$) were able to read and write, 16.8% ($n = 17$) had secondary education, 13.9% ($n = 14$) held a bachelor's degree, and 11.9% ($n = 12$) were illiterate.

The distribution of household management practices for diarrhea prevention is summarized in Table 2. Soap was available near the tap in 75.5% ($n = 74$) of the households. Water treatment practices (such as filtration, boiling, chlorine, or aeration) were highly prevalent, reported by 98.0% ($n = 99$) of the mothers. However, environmental risk factors were notable, with 70.3% ($n = 71$) of participants reporting the presence of flies on exposed food at home. In terms of sanitation, garbage was disposed of periodically in closed containers by 88.1% ($n = 89$) of respondents, and 97.0% ($n = 98$) used closed water tanks. Safe child nutrition practices were high, with 96.0% ($n = 97$) of mothers using discharged/safe water and 81.2% ($n = 82$) practicing exclusive breastfeeding up to six months.

The overall level of mothers' perspectives regarding home-based care for children with diarrhea is presented in Table 3. The analysis revealed that 47.5% ($n = 48$) of the mothers demonstrated a moderate level of perspective/knowledge, while 46.5% ($n = 47$) showed a high level, and only 6.0% ($n = 5$) fell into the low category.

Pearson correlation analysis was performed to determine the relationships between maternal characteristics and their knowledge levels (Table 4). The results indicated a strong and statistically significant positive correlation between the level of maternal knowledge and residency ($r = 0.829$, $P < 0.01$). Additionally, maternal age showed a significant positive correlation with knowledge levels ($r = 0.233$, $P < 0.05$) and the number of children ($r = 0.459$, $P < 0.01$). Conversely, a significant negative correlation was observed between the number of children and maternal knowledge level ($r = -0.497$, $P < 0.01$). The level of knowledge also showed a weak positive but non-significant correlation with educational level ($r = 0.183$) and occupation ($r = 0.126$). A strong negative correlation was found between educational level and occupation ($r = -0.677$, $P < 0.01$), as well as a significant negative correlation between the number of children and educational level ($r = -0.270$, $P < 0.01$).

Table 1. Mothers' sociodemographic characteristics (N=100)

Variables	Groups	F.	%
Age	20-25	53	52.5
	26-30	26	25.6
	31-35	14	13.5
	36-40	3	4.0
	41-45	4	4.4
Occupation	Employee	19	19.8
	house wife	81	80.2
	no read no write	12	11.9
	read and write	29	28.7
Educational level	Primary	13	12.9
	Secondary	17	16.8
	middle school	5	5.0
	Diploma	10	9.9
	Bachelor	14	13.9

Table 2. Factors related to home management to stop diarrhea

Variables	Groups	F.	%
Soap is available near the tap	No	26	24.8
	Yes	74	75.5
Using one of the water treatment methods (filtration, boiling, chlorine, aero)	No	1	1.0
	Yes	99	98.0
The presence of flies in the house on exposed foods	No	29	29.7
	yes	71	70.3
Household garbage is disposed of periodically	open	11	10.9
	close	89	88.1
water tank	open	2	4.0
	close	98	97.0
The water that the child eats	no discharge	3	2.0
	discharge	97	96.0
Continuation of breastfeeding up to 6 months	No	18	18.8
	Yes	82	81.2

Table 3. Over total level of the mother' perspective regarding caring for children with diarrhea at home

Level	Frequency	Percent
High	47	46.5
Moderate	48	47.5
Low	5	6
Total	100	100.0

Table 4. Pearson correlation among study variables of mothers

	1	2	3	4	5	6
1.Age	-					
2. Number of child	.459**					
3. Educational level	.142	-.270**				
4. Occupation	-.072	.211*	-.677**			
5. Residency	-.057	-.062	.173	-.065		
6. Level of knowledge	.233*	-.497**	.183	.126	.829**	-

**.Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Discussion

Discussion of socio-demographic characteristics for mothers

Findings revealed that the highest percentage of

mothers was in the age group of 20-25 years. This finding is similar to a study conducted by (15). In their study, "Self-Efficacy Relationship towards Improvement of Mothers' Knowledge in Childhood Management with Diarrhea," they mentioned that the majority of the study

sample (73.3%) were within the age group of 20-29 years. From the researcher's viewpoint, mothers' age plays a significant role in the occurrence of childhood diarrhea. Teenage mothers had the highest risk of experiencing childhood diarrheal diseases among their children. The occurrence of childhood diarrhea decreased with increasing maternal age.

In addition, the present results disagree with a study conducted by (16), entitled "Prevalence of Diarrhea and Associated Risk Factors among Children Under Five Years of Age in Befouling Health District, Cameroon, Sub-Saharan Africa," which reported that 63.0% of the mothers were within the age group of 26-38 years.

The current study is concerned with the educational level of the study sample and found that the highest proportion of participants had primary and college-level education, with each representing less than one-quarter of the participants (17%). These findings agree with (15), who mentioned that 24 respondents, representing 40%, had completed high school. However, they disagree with the study conducted by (17), entitled "Occurrence of Diarrhea and Feeding Practices among Children Below Two Years of Age in Southwestern Saudi Arabia," which mentioned that more than half of the mothers had received above-secondary-level education.

Furthermore, the current study found, regarding occupation, that most of the studied mothers did not work and were housewives, accounting for 81 (80.1%). This finding agrees with a study conducted by (1), entitled "A Study to Assess the Effectiveness of a Self-Instructional Module on Home Management of Diarrhea among Mothers of Under-Five Children in a Selected Hospital, Bangalore," which mentioned that the maximum number of mothers, 55%, were housewives. This finding also agrees with a study conducted in Iraq/Baghdad by Al-Abbas (2018), entitled "Etiology of Bacterial Diarrhea in Children Under Five Years in Karbala Province, Iraq," which recorded a higher rate among males than females.

Discussion of the Overall Level of Mothers' Perspectives Regarding Caring for Children with Diarrhea at Home

A statistical summary of mothers' perspectives regarding caring for children with diarrhea at home consisted of 19 items. Results indicated that the observed responses were generally assigned a moderate evaluation, accounting for 48 (47.5%) items, while the remaining items were assigned a high evaluation.

Furthermore, the statistics for the factor related to home management for preventing diarrhea and general practices, which consisted of 6 items, indicated that the

observed responses were generally assigned a moderate evaluation, accounting for 6 (60.0%) items, while the remaining items were assigned a high evaluation. From the researcher's viewpoint, hygiene practices are generally considered a protective factor against diarrhea.

The results of this study are compatible with those of the study by (18), entitled "Association of Food-Hygiene Practices and Diarrhea Prevalence among Indonesian Young Children from Low Socioeconomic Urban Areas." However, the results of the current study disagree with those of (19), entitled "Relationship between Maternal Perceptions and Preventive Behaviors Regarding Acute Diarrhea of Children in Bangladesh," which found that maternal preventive behaviors related to hygiene practices and child feeding practices were at a high level. Meanwhile, the results of this study were similar to those of (20), entitled "Survey of Food-Hygiene Practices at Home and Childhood Diarrhea in Hanoi, Viet Nam."

Discussion relationships among mother's responding and their (SDCv.)

The relationships between mothers' responses regarding the studied main domains showed weak, non-significant relationships with some variables, such as mothers' age and residency. However, significant relationships were observed with occupation, educational level, and socioeconomic status.

The results of the current study agree with those of (21), who reported that some variables, including maternal age, schooling, marital status, and occupation, had no significant association with maternal self-efficacy in preventing diarrhea in the investigated sample, while an association was found between socioeconomic status and maternal self-efficacy variables.

On the other hand, a study conducted in Fortaleza, Brazil, by (6), entitled "Socio-Demographic Factors Relating to Mothers' Self-Efficacy in Preventing Childhood Diarrhea," involving 90 mothers of children under 5 years of age, found a significant level of self-efficacy associated with these same variables. However, that study resembles the current study in that family income was a determinant of self-efficacy.

Acknowledgments

First and foremost, great thanks are extended to Almighty God, the Merciful and Compassionate. My deep appreciation and profound thanks are extended to all experts who reviewed and evaluated the study and the study instrument. I would also like to thank the staff of the College of Nursing, especially the staff of the

Department of Pediatrics, for their kindness and support. Additionally, I would like to extend my special thanks to all women from the city of Kerbela who participated in this study.

References

- Gogoi N. A study to assess the effectiveness of self instructional module on home management of diarrhea among mothers of under five children in selected hospital, Bangalore [dissertation]. Bangalore: Rajiv Gandhi University of Health Sciences; 2007.
- Desta BK, Assimamaw NT, Ashenafi TD. Knowledge, practice, and associated factors of home-based management of diarrhea among caregivers of children attending under-five clinic in Fagita Lekoma District, Awi Zone, Amhara Regional State, Northwest Ethiopia, 2016. *Nurs Res Pract* 2017;2017:8084548.
- Jean N, Connie M, Michael H. Factors contributing to diarrheal diseases among children less than five years in Nyarugenge District, Rwanda. *J Trop Dis* 2017;5:3.
- Combes NJ. Preventable deaths: children, diarrhea, and the politics of oral rehydration solution in Kenya [dissertation]. San Diego (CA): University of California San Diego; 2016.
- Thammanna PS, Sandeep M, Sridhar PV. Awareness among mothers regarding oral rehydration salt solution in management of diarrhea: a cross-sectional study. *Indian J Child Health* 2015;2:215-8.
- Karim A. Mother's self-efficacy for preventing diarrhea in children under 5 years at primary health care centers in Al-Diwaniyah City. *Kufa J Nurs Sci* 2021;11:1-11.
- Omole VN, Wamyil-Mshelia TM, Aliyu-Zubair R, Audu O, Gobir AA, Nwankwo B. Knowledge and prevalence of diarrheal disease in a suburban community in north western Nigeria. *Sahel Med J* 2019;22:114-8.
- Anim-Larbi M. Management of diarrhoeal diseases in children under five years by market women: the case of Makola, Accra [dissertation]. Accra: University of Ghana; 2017.
- Ahmed SSM, Haj-Ibrahim AM. Assessment of mothers' knowledge about diarrhea disease in children under 5 years in Elsyal Village 2016 [dissertation]. Shendi: Shendi University; 2016.
- Hussein MAZ, Mansour APDKA. Self-efficacy among thalassemic adults patients at hereditary anemia's centers in Baghdad. *J Nurs Health Sci* 2015;4:75-82.
- World Health Organization. Diarrhoeal disease [Internet]. Geneva: WHO; 2017 [cited 2026 Jun 5]. Available from: <https://www.who.int/news-room/fact-sheets/detail/diarrhoeal-disease>.
- Farthing M, Salam MA, Lindberg G, Dite P, Khalif I, Salazar-Lindo E, et al. Acute diarrhea in adults and children: a global perspective. *J Clin Gastroenterol*. 2013;47:12-20 .
- Datta P, editor. Pediatric nursing. 2nd ed. India: Jitendar P Vij, 2009:292.
- Karakaş NM, Arslan A, Atalay E, Ayli I, Bağcı ZI, Cesaretli S, et al. May rotavirus vaccine affect food allergy prevalence? *Hum Vaccin Immunother* 2020;16:3063-7.
- Artifasari A, Irawati I. Self-efficacy relationship towards improvement of mother's knowledge in childhood management with diarrhea. *J La Medihealtico* 2020;1:20-5.
- Ayuk TB, Carine NE, Ashu NJ. Prevalence of diarrhoea and associated risk factors among children under-five years of age in Efoulan Health District, Cameroon. *MOJ Public Health* 2018;7:259-64.
- Shati AA, Khalil SN, Asiri KA, Alshehri AA, Deajim YA, Al-Amer MS, et al. Occurrence of diarrhea and feeding practices among children below two years of age in Southwestern Saudi Arabia. *Int J Environ Res Public Health* 2020;17:722.
- Agustina R, Sari TP, Satroamidjojo S, Bovee-Oudenhoven IM, Feskens EJ, Kok FJ. Association of food-hygiene practices and diarrhea prevalence among Indonesian young children from low socioeconomic urban areas. *BMC Public Health* 2013;13:977.
- Kundu TR. Relationship between maternal perceptions and preventive behaviors regarding acute diarrhea of children in Bangladesh [dissertation] 2010.
- Takanashi K, Chonan Y, Quyen DT, Khan NC, Poudel KC, Jimba M. Survey of food-hygiene practices at home and childhood diarrhoea in Hanoi, Viet Nam. *J Health Popul Nutr* 2009;27:602-11 .
- Oliveira RKL, Oliveira BSB, Bezerra JC, Silva MJN, Melo FMS, Joventino ES. Influence of socio-economic conditions and maternal knowledge in self-effectiveness for prevention of childhood diarrhea. *Esc Anna Nery* 2017;21:e20160308.