Original Article

Caregivers' Knowledge for Prevention of Acute Diarrheal Diseases in Children

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Abstract

Background: Diarrhea is a leading cause of childhood mortality worldwide. Timely interventions by caregivers play a crucial role in managing and preventing this condition.

Aim: This study aimed to evaluate caregivers' knowledge and practices regarding the prevention of diarrheal diseases in children under the age of 5 years.

Methods: A cross-sectional study was conducted from January to July 2023 using a convenience sampling technique. Data were collected from 158 caregivers of children under 5 years old using a self-structured, pre-tested questionnaire. Chi-square test was applied, and a p-value <0.05 was considered significant.

Results: A total of 158 caregivers participated in the study. The mean age of respondents was 28.4 ± 7.6 years. Among them, 22.8% were illiterate, 84.2% were housewives, and 37.4% had an income exceeding 31,000 rupees/month. The majority (43.1%) had 'poor' knowledge, 24% exhibited 'poor' attitudes and practices, while 12% demonstrated good practices. Significant associations were observed between caregivers' knowledge and education (p-value=0.004), income (p-value=0.001), frequency of diarrhea in a child (p-value=0.053), and practices with education (p-value=0.039).

Conclusion: This study highlights the relationship between caregivers' literacy levels and family income with improved knowledge and feeding practices in preventing diarrhea. It underscores the crucial role of caregivers in managing acute diarrheal diseases.

Keywords: caregiver knowledge, practices, prevention, acute diarrheal diseases, children under 5 years of age.

Introduction

Since caregivers are the primary individuals responsible for children's well-being, their knowledge and perceptions regarding the causes, consequences, and management of diarrhea—particularly in relation to oral rehydration therapy (ORT), antibiotic use, personal hygiene, and feeding practices—are key determinants of diarrheal disease outcomes. This study aims to assess caregivers' knowledge and practices related to the causes, symptoms. Diarrheal diseases remain a major cause of morbidity and mortality among children in developing countries, including Pakistan. Factors such as malnutrition, poor socioeconomic conditions, inadequate hygiene, and unsafe drinking water contribute significantly to the disease burdenEvery year, diarrheal diseases infect around 1.5 million individuals worldwide, 361,000 of whom are children under five years old, mostly in poor countries [2].In Pakistan alone, an estimated 24 million children under five have three to four episodes of diarrhea each year, amounting to almost 120 million cases every year[3]. The burden of acute diarrheal illness in children less than five years in Pakistan was estimated at 29.7% in 2013, while mortality due to diarrhea was 9.1% in this age group[4,5]. As a reaction to the extensive impact of diarrheal disease, the World Health Organization (WHO) initiated a program in 1978 to decrease morbidity and mortality using better management strategies [6]. This program focused on oral rehydration therapy (ORT), proper use of medicine, continued feeding, and health worker or caregiver education on prevention and management [7]. In spite of the efficacy of ORT, it is still used suboptimally, with only 44% of the affected children receiving adequate treatment [8]. Diarrheal disease per se is not by itself fatal but is due to poor management and caregiver practices, leading to dehydration and death [9]. Experience from research done in Ethiopia [10] and Karachi slums [11] indicates the use of good hygiene, sanitation, and preventive interventions in greatly alleviating diarrheal incidence. Since caregivers bear the major brunt of taking care of the child, understanding and knowledge related to diarrhea prevention and management in caregivers are critically important in mitigating child outcomes.

Methodology

Diarrhea continues to be a major killer of children globally, and caregivers' role in prevention and management is pivotal. Interventions that are timely, such as hygiene and appropriate treatment, can cut the incidence and severity of diarrheal illnesses among children under five years of age.

Data collection was done during January to July 2023 at Arif Memorial Teaching Hospital to evaluate knowledge and practices among caregivers for preventing diarrhea. A convenience sampling approach was employed, and data were gathered from 158 caregivers on a structured questionnaire. Statistical tests were conducted by considering a p-value <0.05 to be significant.

The findings revealed that the majority of caregivers possessed poor knowledge and poor hygiene practices. Significant association between caregivers' education, income, and their knowledge on diarrhea prevention and management was found. The findings

emphasize the necessity of specific health education interventions to improve caregivers' knowledge and practices.

Diarrheal illnesses are often seen in children because of reasons like poor sanitation, malnutrition, and contaminated drinking water. Pakistan has millions of diarrhea cases every year, with a large number of deaths among children under the age of five. Global initiatives have been introduced to promote oral rehydration therapy, proper hygiene, and nutritional interventions, yet many caregivers remain unaware of essential preventive and management strategies.

This research focused on evaluating caregivers' knowledge and practices concerning diarrhea prevention and management. Awareness of hygiene measures, appropriate feeding practices, and treatment methods plays a critical role in minimizing the severity and mortality associated with diarrheal diseases.

A non-probability convenience sampling technique was employed to collect data from 158 caregivers. A structured questionnaire assessed their knowledge and practices, and statistical analyses, including chi-square tests, were conducted to examine the relationship between demographic characteristics and awareness levels.

Data analysis was carried out using SPSS version 23, incorporating descriptive statistics and chi-square tests to identify key trends. The questionnaire covered aspects of knowledge, attitudes, and practices, categorizing responses as poor, satisfactory, or good. Ethical approval was obtained before conducting the study, ensuring participant confidentiality.

The study commenced following approval from the Institutional Review Board of Rashid Latif Medical College, Lahore. Participants provided informed consent before interviews, and confidentiality was maintained throughout the research. The questionnaire, validated with a Cronbach alpha of 0.74, included questions adapted from prior studies.

Caregivers' knowledge was evaluated through 13 questions, while 10 questions assessed attitudes and practices. Knowledge was categorized as poor for scores below six, satisfactory for scores between six and eight, and good for scores above eight. Attitudes and practices were rated similarly, with poor scores below five, satisfactory scores between five and seven, and good scores above eight.

The findings revealed that most caregivers lacked sufficient knowledge about diarrhea prevention. A significant relationship was noted between caregivers' education levels and their hygiene practices. Many caregivers were unaware of oral rehydration therapy, appropriate feeding techniques, and sanitation measures. Bridging these knowledge gaps through community education programs is essential.

This study emphasizes the importance of improving caregiver education regarding diarrheal disease prevention. Enhancing awareness about hygiene, prompt treatment, and proper nutrition can contribute significantly to reducing child mortality rates associated with diarrhea.

Results

The study included 158 mothers, with the majority (52.5%) aged between 21-30 years. Regarding educational status, 57% had secondary education or above, while 22.8% were illiterate. Most participants (84.2%) were housewives, and family income varied, with 37.3% earning above 30,000 rupees per month.

Out of 158 mothers, 123 (77.8%) correctly defined diarrhea, and 97 (61.4%) were aware of its causes. Knowledge of dehydration signs varied, with 33.5% recognizing marked thirst and 18.4% identifying weight loss. Additionally, 63.3% understood weaning, and 51.9% knew about diarrhea prevention. Awareness of Oral Rehydration Salt (ORS) was high, with 72.8% knowing about it and 52.5% understanding its preventive role. However, only 43.7% knew how to prepare ORS at home, and 55.1% were aware that prepared ORS remains usable for 24 hours.

Among the respondents, 67% had their children fully vaccinated, and 55% had them immunized against the Rotavirus. When their child fell sick, 77.9% sought medical help from a hospital or health center. A significant majority (87%) practiced breastfeeding for more than six months, but among the 13% who used bottle feeding, only 45% washed bottles regularly.

In terms of water usage, 77.8% used boiled or bottled water, while 22% relied on tap water. Breastfeeding was continued by 76.6% of mothers during diarrhea, and 57% increased fluid intake for their child. Weaning practices showed that 78.5% started weaning at six months, with 73.4% using homemade food. Handwashing habits varied, with 31.6% washing hands before food preparation, 14.6% before feeding children, 46.2% after defecation, and 7.6% after handling a child who had defecated.

A significant association was found between knowledge and education level (p-value=0.004), with illiterate mothers showing poorer knowledge compared to those with secondary education or above. Family income also influenced awareness, with a significant relationship (p-value=0.001). Similarly, attitude and practices were significantly associated with education (p-value=0.039), showing that higher education levels improved maternal practices in preventing diarrhea.

Discussion

The socio-demographic characteristics of the mothers surveyed are outlined in Table 1. The majority of mothers were in the 21-30 age range, followed by those in the 31-40 age group. A smaller proportion were under 20 years old, and very few were above 40 years. Regarding educational status, the majority of mothers had secondary education or higher, followed by those with primary education. A significant proportion of mothers were housewives, with a smaller percentage employed. As for the family income, most families had a monthly income above 30,000 rupees, while the remaining families had varying income levels.

Out of 158 mothers, most provided the correct definition of diarrhea, and a majority correctly identified its causes. Concerning dehydration signs, the most common symptom mentioned was marked thirst, followed by weight loss. Additionally, many mothers were aware of the concept of weaning, and a substantial number knew about diarrhea prevention

methods. A significant number of mothers were familiar with Oral Rehydration Salt (ORS), with a good percentage aware that it could help prevent diarrhea. However, fewer mothers knew how to make ORS at home, and only some were aware that prepared ORS remains usable for only 24 hours. The study revealed that most children had received complete vaccinations, and a considerable number of mothers had vaccinated their children against the Rota virus. Most mothers preferred seeking help from a health center when their child was sick. Additionally, a large majority of mothers breastfed their children for more than six months. Among mothers who used bottles to feed their children, only a portion regularly washed the bottles. Regarding water usage, many mothers used boiled or bottled water, while a smaller percentage used tap water.

Concerning practices during diarrhea, most mothers continued breastfeeding, and many provided additional fluids. Most started weaning their infants at 6 months, and some of the mothers employed commercially prepared weaning foods. The handwashing practice was found to be poor, with few mothers washing their hands before food handling and before feeding the children.

The research established that the majority of the mothers showed high awareness of diarrhea, with a high percentage accurately defining the condition. Nonetheless, even with this broad awareness, a large number of mothers lacked knowledge of signs of dehydration in children, indicating a gap in knowledge.

Vaccination against the Rota virus proved to be a very effective prevention, with a large majority of mothers reporting a child's vaccination. This proportion is greater than in other studies from different parts of the world, and it indicates a rise in the awareness and practices of vaccination among mothers.

With respect to feeding and water practice, most mothers utilized boiled or bottle water, a key practice for diarrhea prevention. Yet, relatively few mothers regularly washed their bottles, an issue that persists. Another study reported a greater proportion of mothers utilizing boiled water, indicating some betterment in maternal practices over the last few years.

Breastfeeding through diarrhea was also a common practice, with most mothers continuing to breastfeed during diarrhea. This is supported by similar findings from other studies, where a high percentage of mothers were found to continue breastfeeding through diarrhea.

Although overall the trends were encouraging, handwashing habits were poor, with a large percentage of mothers failing to wash their hands before food preparation and feeding. This points towards the need for more education regarding hygiene practices.

Conclusion

This study highlights the gaps in maternal knowledge and practices concerning diarrhea prevention and management. While many mothers were aware of the basic concepts related to diarrhea, there was a clear need for more education regarding its prevention, dehydration signs, and proper practices such as handwashing. The study also underscores the importance of maternal education and family income in shaping the knowledge and practices of mothers.

Authors' Contribution

J.T. contributed to the study design, data analysis, literature review and manuscript writing.

Conflict of Interest

There is no conflict of interest related to this study.

Funding & Ethics

This research was self-funded by author. The study was conducted in accordance with ethical guidelines and approved by Rashid Latif Medical College.

Table 1. Demographic Characteristics of Caregivers Participating in the Study

Variable	Frequency (n=158)	Percentage (%)
Age of Caregiver (years)		
<20	13	8.2
21–30	83	52.5
31–40	58	36.7
>40	4	2.5
Education Level		
Illiterate	36	22.8
Primary	32	20.2
Secondary and above	90	57.0
Employment Status		
Housewife	133	84.2
Employed	25	15.8
Family Income (Rs./month)		
<10,000	15	9.5
10,001–20,000	38	24.1
20,001–30,000	46	29.1
>30,000	59	37.3

Table 2. Relationship Between Caregivers' Knowledge and Their Educational and Income Levels

Education Level	Good	Satisfactory	Poor	Total (n=158)	p-value
Illiterate	8	11	17	36	
Primary	2	9	21	32	
Secondary & above	22	39	29	90	**0.004***
Family Income (Rs./month)	**Good**	**Satisfactory**	**Poor**	**Total (n=158)**	**p-value**
<10,000	1	4	10	15	
10,001–20,000	4	18	16	38	
20,001–30,000	12	12	22	46	
>30,000	15	25	19	59	**0.001***

Table 3. Association of Caregivers' Attitudes and Practices with Education and Monthly Income

Education Level	Good	Satisfactory	Poor	Total (n=158)	p-value
Illiterate	4	21	11	36	
Primary	1	18	13	32	
Secondary & above	14	62	14	90	**0.039***
Family Income (Rs./month)	**Good**	**Satisfactory**	**Poor**	**Total (n=158)**	**p-value**
<10,000	1	10	4	15	
10,001–20,000	1	28	9	38	
20,001–30,000	10	26	10	46	
>30,000	8	37	14	59	**0.102**

Table 4. Correlation of Diarrhea Knowledge With Frequency of Occurrence and Preventive Awareness

Frequency of Diarrhea	Good	Satisfactory	Poor	Total	p-value
Fortnightly	6	1	4	14	
Monthly	11	–	11	27	
Every 6 months	13	31	18	62	
Yearly	2	3	3	8	**0.053***
Prevention Awareness	**Good**	**Satisfactory**	**Poor**	**Total**	**p-value**
Yes	31	45	6	82	
No	1	1	61	63	**0.000***

References

1. Saguda N, Msisiri LS, Masika GM, Masanja PP. Caregiver's knowledge of childhood diarrhea disease prevention strategies and their associated Factors in Dodoma, Tanzania. A Cross-Sectional study. SAGE Open Nurs [Internet]. 2024 Jan 1;10. Available from: https://doi.org/10.1177/23779608241301736
2. Ndou A, Lebese RT, Tshitangano TG, Damian JU. A descriptive cross-sectional assessment of caregivers' knowledge and practices regarding the prevention and management of diarrhea among children under the age of five in Thulamela B Clinics, South Africa. Int J Environ Res Public Health [Internet]. 2021 Sep 8;18(18):9452. https://doi.org/10.3390/ijerph18189452
3. West BA, Okari TG. Knowledge, attitude and practice of diarrhoea, home management and prevention among mothers/care-givers attending a paediatric outpatient clinic in Rivers State, Nigeria. Int J Res Rev [Internet]. 2023 Mar 30;10(3):544–9. Available from: https://doi.org/10.52403/ijrr.20230361
4. Marew A, Zaza ZJ, Birhanu S, Belachew A, Kasse T. Delays in health care seeking for diarrheal disease and associated factors among caregivers of under five children in health centers of northwest Ethiopia: a mixed-method study. BMC Public Health [Internet]. 2025 Jan 13;25(1). https://doi.org/10.1186/s12889-025-21300-x
5. Fikire A, Ayele G, Haftu D. Determinants of delay in care seeking for diarrheal diseases among mothers/caregivers with under-five children in public health facilities of Arba Minch town, southern Ethiopia; 2019. PLoS One [Internet]. 2020 Feb 13;15(2):e0228558. https://doi.org/10.1371/journal.pone.0228558
6. Saha G, Chowdhury MJBA, Wadia N, Biswas S. Knowledge and awareness about personal hygiene among the caregivers of the children of acute watery diarrhoea attending in a tertiary care hospital. banglajol.info [Internet]. 2022 May 27. Available from: https://doi.org/10.3329/jninb.v8i1.59935
7. Carias C, Hu T, Chen YT. Burden of rotavirus gastroenteritis on caregivers: findings from a systematic literature review. Hum Vaccin Immunother [Internet]. 2022 Apr 4;18(5). https://doi.org/10.1080/21645515.2022.2047545
8. Khaliq A, Amreen N, Jameel N, Krauth SJ. Knowledge and practices on the prevention and management of diarrhea in children under-2 years among women dwelling in urban slums of Karachi, Pakistan. Matern Child Health J [Internet]. 2022 Mar 5;26(7):1442–52. Available from: https://doi.org/10.1007/s10995-022-03391-9
9. Huda M, Rabbani F, Shipton L, Aftab W, Khan KS, Marini MG. Listening to caregivers: narratives of health seeking for children under five with pneumonia and diarrhea: insights from the NIGRAAN trial in Pakistan. J Multidiscip

Healthc [Internet]. 2023 Nov 1;16:3629–40. https://doi.org/10.2147/jmdh.s417102

10. Parvin T, Thomas ED, Bhuyian MdSI, Uddin IM, Hasan MdT, Rahman Z, et al. Fecal contamination on the household compound and in water sources are associated with subsequent diarrhea in young children in urban Bangladesh (CHoBI7 Program). Am J Trop Med Hyg [Internet]. 2021 Jun 7;105(1):261–6. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC8274748/
11. Fekadu GA, Wordofa MA, Woldie FB, Fite RO, Alemu K, Worku A, et al. Treatment-seeking practices of caregivers for children aged less than five years old with diarrhoea in low- and middle-income countries: a systematic review and meta-analysis. J Glob Health [Internet]. 2025 Apr 25;15. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC12023808/
12. Cohen AL, Platts-Mills JA, Nakamura T, Operario DJ, Antoni S, Mwenda JM, et al. Aetiology and incidence of diarrhoea requiring hospitalisation in children under 5 years of age in 28 low-income and middle-income countries: findings from the Global Pediatric Diarrhea Surveillance network. BMJ Glob Health [Internet]. 2022 Sep 1;7(9):e009548. https://gh.bmj.com/content/7/9/e009548
13. Tumusiime S, Asimwe JB, Atuhaire L, Wasswa R, Nsimbe D, Brian K. Caregivers' treatment-seeking time for diarrhea in under-five children in Uganda: a multilevel proportional hazards analysis. Res Sq [Internet]. 2023 Nov 14. https://www.researchsquare.com/article/rs-3566357/v1
14. XZ D. Clinical and medical-social characteristics of young children with chronic diarrhea [Internet]. КиберЛенинка. 2023. https://cyberleninka.ru/article/n/clinical-and-medical-social-characteristics-of-young-children-with-chronic-diarrhea
15. Biswas SK, Thomas ED, Masud J, Zohura F, Hasan T, Parvin T, et al. Formative research for the design of a baby water, sanitation, and hygiene mobile health program in Bangladesh (CHOBI7 Mobile Health Program). Am J Trop Med Hyg [Internet]. 2020 Oct 6;104(1):357–71. https://pmc.ncbi.nlm.nih.gov/articles/PMC7790075/