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Original article

A Study of Knowledge and Practices Regarding Infectious Diarrheal Diseases among the Adult Population in a Rural Community

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Abstract

Background: Infectious diarrheal diseases remain a significant public health problem in low-resource settings, particularly in rural communities with inadequate access to safe water, sanitation, and health services. ***Objectives:*** This study assessed knowledge and practices regarding diarrheal diseases among adults in a rural Bangladeshi community to identify gaps and inform prevention strategies. ***Materials and Methods:*** A cross-sectional descriptive study was conducted among 252 adults (≥18 years) from three villages of Keraniganj upazila, Dhaka, during January–April 2025. Data were collected via face-to-face interviews using a semi-structured questionnaire covering socio-demographics, knowledge, and practices. Descriptive statistics were applied using SPSS 21. ***Results:*** Participants' mean age was 41.1 years; 55% were female, 90% married, and 39% had less than one year of schooling. Most households (86%) had sanitary toilets and 76% relied on tube-well water. Good knowledge of diarrheal disease was found in 56.8% of respondents, though only 42.9% identified causative agents correctly and 56.3% knew the proper preparation of ORS. Hygiene practices were better: 93% washed hands with soap after toilet use, 90% before eating, and 94% covered food. However, 72% reported consuming unsafe street foods and only 42% practiced safe waste disposal. Overall, 42% demonstrated good practices, 46% moderate, and 13% poor. ***Conclusion:*** Despite relatively high awareness of diarrheal prevention and treatment, significant gaps remain in food safety and waste disposal practices. Public health interventions should focus on practical demonstrations of ORS preparation, stricter food hygiene promotion, and community-based waste management initiatives.

Keywords: Diarrhea, KAP, Knowledge, Practice, Bangladesh

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Introduction:

Infectious diarrheal diseases remain a formidable challenge to global public health, particularly in resource-limited settings. They are a leading cause of morbidity and mortality worldwide, disproportionately affecting children under five and vulnerable populations in low- and middle-income countries (LMICs).[1] The World Health Organization (WHO) estimates that diarrheal disease is the second leading cause of death in this young age group, responsible for approximately 525,000 deaths annually.[2] While mortality is highest among children, the burden of disease extends across all age groups, contributing significantly to malnutrition, reduced workforce productivity, and economic strain on families and healthcare systems.[3]

The transmission of these pathogens is primarily fecal-oral, often through the consumption of contaminated water or food, and is closely linked to inadequate sanitation, poor hygiene practices, and limited access to clean water.[4] Despite the existence of effective preventive measures, such as hand-washing with soap, safe water storage, proper sanitation, and timely management with oral rehydration therapy (ORT), the incidence of diarrheal illness remains persistently high in many regions.[5] This gap between known interventions and their implementation underscores the critical importance of community-specific knowledge, attitudes, and practices (KAP).

The adult population plays a pivotal role in the prevention and management of diarrheal diseases within a household and community. Adults are typically the primary caregivers, decision-makers regarding health-seeking behaviors, and custodians of hygiene practices. Their knowledge directly influences the health outcomes of children and other family members.[6] Therefore, understanding the level of awareness and the common practices among adults is essential for designing effective and targeted public health interventions. Rural communities often face a unique set of challenges, including poorer infrastructure, lower educational attainment, and less access to healthcare information compared to urban areas.[7] These factors can create an environment where misconceptions about disease transmission and treatment are more prevalent, and where preventive practices are not optimally adopted. While numerous studies have focused on pediatric diarrhea, there is a relative paucity of research specifically investigating the KAP of the adult population in rural contexts regarding infectious diarrhea affecting all age groups.

This study, therefore, aims to assess the knowledge and practices concerning infectious diarrheal diseases among the adult population in a rural community. The findings will help identify key knowledge gaps and risky practices, thereby providing valuable evidence for local health authorities to develop tailored health education programs and strategies to reduce the community's burden of diarrheal diseases.

Materials and methods

A cross-sectional descriptive study was conducted among adults (≥18 years) in Doleshwar, Konda, and Ainta villages of Keraniganj, Dhaka, from January to April 2025. A total of 252 participants were selected via convenience sampling. Data were collected using a semi-structured questionnaire on Google Forms, administered through face-to-face interviews (CAPI) after obtaining verbal consent. Descriptive statistics were analyzed using MS Excel and SPSS version 21. The study received ethical approval from the Community Medicine Department of Bashundhara Ad-din Medical College. Limitations include the use of convenience sampling, a small sample size, and a non-validated questionnaire. Convenience sampling was chosen due to resource constraints and ease of access within the geographically limited study area. However, we acknowledge that this non-probability method may introduce selection bias and potentially limit the generalizability of our findings to the broader adult population of Keraniganj. AI tools (ChatGPT, Gemini, and DeepSeek) were used for language editing

Result:

Socio-economic Characteristics:

The study included 252 adults. The majority were female (55.16%), married (90.1%), and Muslim (98.8%). The mean age was 41.1 (±15.4) years. Educational levels were low, with 39.3% having less than one year of schooling. Most lived in nuclear families (77.4%) with a mean of 4.8 members. The mean monthly income was 26,580.2 Tk. (±19,077.8), with 36.1% in the low-income group. Most resided in paka houses (52.0%), used tube-well water (75.8%), and had access to sanitary toilets (86.1%).

Knowledge Regarding Diarrhea:

Overall, 56.8% of respondents had good knowledge. However, specific knowledge gaps were identified: only 42.9% correctly identified causative agents, and 56.3% could describe correct ORS preparation. Knowledge was higher in other areas: transmission pathways (69.8%), preventive measures (71.8%), and general treatment (90.9%).

Practices Regarding Diarrhea Prevention:

Hand-washing practices were high after toilet use (93.3%) and before eating (90.5%). Most respondents (94.4%) kept food and drinks covered. However, key risky practices were prevalent: 71.8% consumed unsafe street foods, and only 42.1% used safe waste disposal methods. Overall, 41.7% had good practice, 45.6% had moderate practice, and 12.7% had poor practice.

Table 1: Socio-demographic and Economic Characteristics of the Respondents (n=252)

Characteristic	Category	Frequency	Percentage (%)
Sex	Male	113	44.8
	Female	139	55.2
Age Group (Years)	18-35	111	44.0
	36-49	69	27.4
	50-90	72	28.6
	Mean (±SD): 41.1 (±15.4)		
Religion	Muslim	249	98.8
	Hindu	3	1.2
Marital Status	Married	227	90.1
	Single	16	6.3
	Widow/Divorced	9	3.6
Education Level	<1 year schooling	99	39.3
	1-8 years schooling	82	32.5
	9 yrs to SSC	52	20.6
	Bachelor's or above	19	7.5
Monthly Family Income (Tk.)	Low (0-15,000)	91	36.1
	Lower-middle (15,001-25,000)	73	29.0
	Higher-middle (25,001-40,000)	42	16.7
	High (>40,000)	46	18.3
	Mean (±SD): 26,580.2 (±19,077.8)		
Drinking Water Source	Tube-well	191	75.8
	WASA/Pipeline	58	23.0
	Pond/River	3	1.2
Excreta Disposal	Sanitary Toilet	217	86.1
	Open/Non-sanitary	35	13.9

Table 2: Knowledge of Respondents on Infectious Diarrheal Diseases (n=252)

Knowledge Domain	Response	Frequency	Percentage (%)
Causative Agents	Correct	108	42.9
	Incorrect	144	57.1
Environmental Factors	Correct	161	63.9
	Incorrect	91	36.1
Mode of Transmission	Correct	176	69.8
	Incorrect	76	30.2
Vectors of Transmission	Correct	141	56.0
	Incorrect	111	44.0
Preventive Measures	Correct	181	71.8
	Incorrect	71	28.2
Treatment Awareness	Correct	229	90.9
	Incorrect	23	9.1
ORS Preparation	Correct	142	56.3
	Incorrect	110	43.7
Overall Knowledge Score	Good (30-40)	143	56.8
	Moderate (15-25)	50	19.8
	Poor (0-10)	59	23.4

Discussion

This study aimed to assess the knowledge and practices regarding infectious diarrheal diseases among adults in a rural community. The findings reveal a critical disconnect between generally good theoretical knowledge in certain areas and the persistence of high-risk practices, highlighting the complex factors that influence health behavior in this setting.

The finding that 56.8% of participants possessed good overall knowledge is encouraging and suggests that basic health messages regarding diarrheal diseases have reached this community. The high levels of knowledge regarding general treatment (90.9%) and transmission pathways (69.8%) are consistent with other studies conducted in similar socio-economic contexts.[8] This indicates a successful penetration of public health information, likely through government and non-governmental organization initiatives. However, the presence of significant knowledge

Table 3: Practices of Respondents on Prevention of Infectious Diarrheal Diseases (n=252)

Practice Domain	Response	Frequency	Percentage (%)
Hand-washing with soap after toilet use	Yes	235	93.3
	No	17	6.7
Hand-washing before eating	Yes	228	90.5
	No	24	9.5
Keeping food/ drinks covered	Yes	238	94.4
	No	14	5.6
Consuming unsafe street food	Yes	181	71.8
	No	71	28.2
Waste disposal method	Safe	106	42.1
	Unsafe	146	57.9
Overall Practice Score	Good (30-35)	105	41.7
	Moderate (25-30)	115	45.6
	Poor (0-20)	32	12.7

gaps is a major concern. The low proportion of respondents who could correctly identify causative agents (42.9%) and describe ORS preparation (56.3%) is particularly alarming. This aligns with the introduction's premise that rural communities face challenges in healthcare access and information, potentially leading to misconceptions.[7] Without understanding the microbial cause of diarrhea, the rationale for specific hygiene practices like hand-washing with soap may be lost on a large segment of the population.

Despite adequate knowledge in some domains, the translation of this knowledge into practice was markedly poor. Only 41.7% of respondents were classified as having good overall preventive practices. This knowledge-practice gap is a well-documented phenomenon in public health and is often influenced by deeply ingrained socio-cultural habits, economic constraints, and environmental factors.[9] For instance, while hand-washing after defecation was nearly universal (93.3%), the high consumption of unsafe street food (71.8%) represents a major risk factor. This suggests that perceived convenience and accessibility of street food may outweigh known risks. Furthermore, the inadequate practice of safe waste disposal (42.1%) creates an environment conducive to the propagation and spread of enteric pathogens, undermining individual hygiene efforts.[4]

The socio-demographic profile of the study population provides crucial context for these findings. The low levels of formal education (39.3% with <1 year of schooling) and the significant proportion with low income (36.1%) are likely key determinants of both the knowledge gaps and the failure to adopt optimal practices. Education is a well-established social determinant of health, enabling individuals to better understand and act upon health information.10 Similarly, poverty can limit the ability to invest in safer food choices, improved sanitation infrastructure, and other preventive measures, even when knowledge is present. Specifically, the high prevalence of consuming unsafe street food (71.8%) and unsafe waste disposal (57.9%) is likely exacerbated by these economic realities, where cheaper, more convenient options outweigh known health risks.

In conclusion, this study identifies a critical knowledge-practice gap in the prevention of infectious diarrheal diseases within this rural adult population. Public health interventions must move beyond generic awareness campaigns. Future strategies should be tailored, multifaceted, and practical, focusing on addressing the specific misconceptions identified (e.g., causative agents, ORS use) and mitigating the environmental and economic drivers of risky practices, such as promoting affordable safe food alternatives and improving waste management systems.

Conclusion

Despite reasonable awareness of diarrheal prevention and treatment, critical gaps persist in practices related to food safety, waste management, and ORS preparation. Socioeconomic constraints further hinder effective hygiene adoption. Public health initiatives must combine culturally relevant education, infrastructural improvements, and community engagement to achieve sustainable reductions in diarrheal disease prevalence. Implement targeted educational campaigns to improve knowledge on disease transmission and correct ORS preparation. Strengthen food safety regulations and promote proper waste disposal and hand hygiene practices. Enhance multi-sectoral collaboration to improve WASH infrastructure and ensure healthcare access to ORS and zinc.

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Conflict of interest

The authors declare that no conflict of interest exists.

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