FIELD REPORT

Community Engagement and Awareness about waterborne diseases to Detect Early Warning Signs & increase Self-reporting

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Abstract
Waterborne diseases continue to pose a significant public health challenge, especially in areas with inadequate access to clean water and sanitation. This study aimed to assess community awareness, knowledge, and preventive practices regarding waterborne diseases in two districts of Jammu Division, Reasi and Jammu. A household survey was conducted among 200 families using a structured questionnaire. Findings revealed that 57% of respondents lacked awareness of waterborne diseases, and 89% were unaware of their modes of transmission. Only 20% knew preventive measures, and 57.5% never used water purification methods. Barriers to clean water access (44%) and healthcare services (50%) were also reported. The study underscores the need for community-based interventions, including health education, engagement of local health workers, and IEC material dissemination. Strengthening WASH practices and improving early disease detection can significantly reduce the burden of waterborne diseases in vulnerable populations, aligning with global health goals.

Keywords
Water-Borne Diseases; Sanitation; Community, Awareness

Introduction
Waterborne diseases remain a significant public health challenge, particularly in areas with inadequate access to clean water and sanitation. The lack of awareness about these diseases, their symptoms, and prevention often leads to delayed diagnosis and treatment, leading to outbreaks. Waterborne diseases may be referred to the infections caused by pathogens transmitted through polluted and contaminated water, significantly impacting public health globally. The pathogens responsible for the transmission of these infection may include bacteria, viruses, protozoa, and helminths which are often linked to inadequate water treatment and sanitation practices(1)

Water-borne diseases pose a great burden on global public health. However, the global distribution of these water-associated infectious diseases and underlying factors remains largely unexplored. Based on the

Global Infectious Disease and Epidemiology Network (GIDEON), a global database including water-associated pathogens and diseases reported a total of 1,428 reported outbreak events worldwide from 1991 to 2008(2)

Waterborne infections affect millions of people worldwide, and India is not an exception, with acute diarrheal disease (ADD), typhoid, cholera, hepatitis, and shigellosis being the most common waterborne diseases in the country. These diseases have caused about 11,728 deaths between 2014 and 2018 out of which 10,738 deaths occurred only after 2017(3)

The high burden of water-borne disease may be primarily due to the consumption of unsafe water, inadequate sanitation, and poor hygiene practices(2), which may be linked to the general public's lack of knowledge and awareness. Therefore, reducing the burden of waterborne diseases is a significant challenge in public health and requires the implementation of feasible water, sanitation, and hygiene (WASH) interventions, especially in densely populated rural areas.(4)

The current project aimed to enhance community engagement and awareness about waterborne diseases to detect early warning signs and to increase self-reporting

The main objectives of the study were to assess community members' Knowledge and awareness about waterborne diseases, their symptoms, and prevention strategies, improve community engagement, and inform community members about the importance of self-reporting of waterborne diseases. The study also aimed to Conduct health education and training sessions highlighting the importance of early detection of waterborne diseases.

Material & Methods

The project was conducted in two districts of Jammu Division, Reasi and Jammu. Pouni block and Dadooa Village were covered in Reasi District while Sangul village, Akhnoor was covered in the Jammu district. The project started with the data collection for community needs assessment and the assessment of Knowledge, awareness, and practice for the prevention of waterborne diseases among the families residing in the area. The data collection was done via a house-to-house survey using a detailed questionnaire prepared beforehand. The Demographic details of each family were noted followed by the information on General Awareness, Knowledge and health-seeking behaviour for the Prevention and Control of waterborne diseases. The source of drinking water was also assessed during the survey. The families were also asked about the barriers and challenges they face in accessing clean and safe drinking water, practicing good hygiene and sanitation along with the access of health care services.

Data was collected at a total of 200 households across both districts. Data was collected using Epicollect software and the Data analysis was done using IBM SPSS software version 23.

Results

General Awareness about waterborne disease among the community

The community need assessment data on participants' awareness and experiences regarding waterborne diseases indicated that a majority (57%) of the respondents were unaware of what waterborne diseases are. A similar percentage(57%) have not heard of common waterborne illnesses like diarrhoea, cholera, or dysentery. Additionally, 89% did not know how these diseases are spread.

Table 1. General Awareness about waterborne disease(N=200)

	Yes	No
Know what "waterborne diseases" are	86(43%)	114(57%)
Heard of these common waterborne diseases like Diarrhoea, Cholera or Dysentery	86(43%)	114(57%)
Know how waterborne diseases are spread	22(11%)	178(89%)

Knowledge of causes and symptoms

The above table shows that 44% of the sample were unaware of the causes of waterborne diseases, and 47.5% were not sure. 37.5% of the population lacked awareness about the symptoms of waterborne diseases, 40.5% were

uncertain, and only 22% knew about the symptoms. About half (49.5%) of the participants experienced waterborne diseases in their families, while 38.5% were unsure.

Table 2. Knowledge of causes and symptoms(N=200)

	Yes	No	Not Sure
know what are the main causes of waterborne diseases?	17(8.5%)	88(44%)	95(47.5%)
know about any symptoms of waterborne diseases you are aware of	44(22%)	75(37.5%)	81(40.5%)
Have you or your family ever experienced a waterborne disease	99(49.5%)	24(12%)	77(38.5%)

Prevention and Control for water-borne diseases

In terms of water sources, 69% of respondents use piped water, and 30.5% rely on tubewell water.

Table 3 Prevention and Control(N=200)

	Yes	No	Not Sure
Know about any measures taken to prevent waterborne diseases	40(20%)	76(38%)	84(42%)
	Always	Never	Sometimes
How often do you use water purification methods (boiling, filtering, chlorination, etc.)?	28(14%)	115(57.5%)	57(28.5%)

Table 3 demonstrates that 42% of the total sample were unsure of actions to prevent these diseases, 37% were unaware, and 20% knew of such measures. Most participants (57.5%) never use water purification methods, while 28.5% do so occasionally, and only 14% always use them.

Table 4. Health-seeking behaviour and community practices(N=200)

	Yes	No	Sometimes
Do people in your family usually go for treatment if they suspect a waterborne disease	72(36%)	28(14%)	100(50%)
Are there any local health workers or community leaders who educate people about waterborne diseases	Yes 115(57.5%)	No 6(3%)	Don't Know 79(39.5%)

The above table shows that Half of the respondents (50%) sometimes seek treatment for suspected waterborne diseases in their families, while 36% always seek treatment. 57.5% of the participants know about the Community health workers or leaders, but 39.5% are uncertain about these efforts.

Table 5. Barriers and challenges(N=200)

	Yes	No
Are there any challenges you face in accessing clean and safe drinking water?	88(44%)	112(56%)
Are there any barriers to practising good hygiene and sanitation in your Family?	30(15%)	170(75%)
Are there any challenges you face in accessing healthcare services	100(50%)	100(50%)

The above table shows that 44% of the participants face challenges in accessing clean drinking water, and 15% experience barriers to practicing good hygiene and sanitation. Lastly, 50% of the respondents report challenges in accessing healthcare services, while the other half do not.

Discussion & Conclusion

The risk of water-borne disease will remain an ongoing biological hazard to the rapidly globalizing world, highlighting the importance of sustainable strategies, to meet the SDGs by 2030(5). The infectious disease distribution which includes waterborne diseases involves both social and demographic factors including human population density and behaviour, housing type and location, water supply, sewage and waste management systems, land use and irrigation systems, access to health care, and general environmental hygiene(6). Raising the quantity and quality of drinking water, ensuring safe sewage disposal, and offering accessible, affordable sanitation solutions.(7)

The project highlights the critical need for improving community awareness and practices related to waterborne diseases in rural areas. A significant portion of the population demonstrated limited knowledge about the causes, symptoms, and prevention of these diseases, with many unaware of how waterborne diseases spread or how to prevent them. Additionally, a large proportion of the community lacked access to clean drinking water and faced barriers in practising proper hygiene and sanitation.

Recommendation

Engaging community leaders, community members and local health workers(ASHA, MPHW) to conduct frequent Health education and training sessions to improve the overall general awareness and knowledge among the local communities. Making sure the general public can detect early warning signs of suspected waterborne & Encouraging people to seek medical attention to increase self-reporting to enhance disease surveillance. Development and demonstration of IEC Material at Anganwadi Centres, Sub-centres & PHCs in English, Hindi as well as the local language. Maintaining a focus on public health education and WASH (Water, Sanitation, and Hygiene) interventions will be essential for protecting the health of vulnerable populations

Limitation of the Study

Time Period if the study was only 2 months

Relevance of the Study

(What it adds to the current knowledge)

The project highlights the critical need for improving community awareness and practices related to waterborne diseases in rural areas. A significant portion of the population demonstrated limited knowledge about the causes, symptoms, and prevention of these diseases, with many unaware of how waterborne diseases spread or how to prevent them. Additionally, a large proportion of the community lacked access to clean drinking water and faced barriers in practising proper hygiene and sanitation.

Authors Contribution

All authors have contributed equally.

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Nil

Conflict of Interest

There are no conflicts of interest.

Declaration Of Generative AI And AI Assisted Technologies In The Writing Process

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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