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EXAMINING BARRIERS AND FACILITATORS TO COMMUNITY PARTICIPATION IN WATERBORNE DISEASE PREVENTION IN RIVERS STATE: A QUALITATIVE STUDY

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Abstract

Introduction: Water is essential for life, yet in many riverine communities of Rivers State, Nigeria, it also serves as a conduit for diseases such as cholera, typhoid, and diarrheal infections. Persistent outbreaks highlight gaps in community participation, undermining the effectiveness of preventive interventions. Understanding socio-cultural, economic, and institutional barriers, alongside facilitators, is crucial for designing sustainable waterborne disease prevention strategies. **Methodology:** A mixed-methods quasi-experimental pretest–post-test design was employed across 15 purposively selected riverine communities over 15 months. Quantitative surveys ($n = 600$ households) assessed knowledge, attitudes, and participation, while in-depth interviews explored barriers and facilitators qualitatively. Multistage cluster sampling, validated instruments ($\alpha = 0.81–0.87$), and triangulated data collection ensured reliability. Ethical approval, informed consent, and confidentiality were rigorously maintained. **Results:** Economic constraints, including opportunity and transport costs, limited participation, while flexible scheduling and in-kind contributions facilitated engagement. Knowledge and attitudes improved significantly post-intervention, particularly among higher-educated and income groups. Community responsibility and trust in local health workers increased by over 25%, and active women and youth participation correlated with improved preventive behaviors. **Discussion:** Sustainable participation requires interventions that align with local socio-economic and cultural contexts. Trust, social capital, experiential learning, and economic incentives were pivotal, while traditional beliefs persisted, demonstrating the need for culturally congruent approaches. **Recommendations:** Integrating participatory learning and action (PLA) tools into routine health outreach can strengthen experiential engagement, ownership, and long-term WASH outcomes. **Conclusion:** Community-driven, context-sensitive interventions significantly enhance waterborne disease prevention,

highlighting the centrality of trust, inclusion, and culturally congruent strategies for sustainable public health impact.

Keywords: Water, WASH, Preventive Interventions, Persistent Outbreaks, Waterborne Disease Prevention, Public Health

Introduction

Running water symbolizes life, yet in many low- and middle-income communities, it also poses disease risks. Waterborne infections such as cholera, typhoid, and diarrheal illnesses continue to claim millions of lives annually, reflecting gaps in community participation in prevention efforts (Musuva et al., 2019). Meaningful participation enhances program effectiveness and sustainability, but top-down interventions often neglect local contexts, reducing ownership and impact (Tumwebaze & Mosler, 2017; Musuva et al., 2019). Barriers include cultural norms, gender inequality, economic hardship, weak institutional coordination, and limited incentives (Ndichu, 2018; Simiyu et al., 2017). Facilitators such as continuous health education, transparent communication, community structures, and small incentives improve engagement (Wasonga et al., 2014). This study examines barriers and facilitators affecting community participation in waterborne disease prevention to guide equitable, sustainable public health strategies.

Aim and Objectives

The study aimed to explore barriers and facilitators influencing community participation in waterborne disease prevention. This aim was achieved through the following objectives:

1. Identifying barriers and facilitators to community participation.

2. Assessing community knowledge on waterborne disease prevention pre- and post-intervention.

3. Evaluating community attitudes towards waterborne disease prevention pre- and post-intervention.

The findings will inform policymakers, health workers, and community leaders on designing inclusive, sustainable interventions that enhance local ownership and long-term impact.

Methodology

Study Area

The study took place in riverine communities of Rivers State, Nigeria, characterized by flooding, poor sanitation, and limited healthcare access. Ten highly vulnerable LGAs were purposively selected.

Research Design

A mixed-methods quasi-experimental pretest–post-test design combined surveys and interviews to assess community knowledge, participation barriers, and facilitators over 15 months.

Study Population and Size

The study included approximately 45,000 residents from 15 riverine communities, mainly fishermen and traders using untreated water. Participants aged 15 and above who had lived in the community for at least a year were eligible. Six hundred households were sampled for a 12% disease reduction, with qualitative data collected until saturation.

Sampling Technique

Fifteen communities were selected via multistage cluster sampling, with 40 households each and one adult respondent per household; data collection tools were pretested and validated ($\alpha = 0.81–0.87$) for reliability.

Ethical Approval

Ethical clearance was obtained; informed consent and confidentiality were maintained throughout all field activities.

Data Collection and Verification

Data were collected over 15 months through digital surveys, interviews, and health facility records, with all information closely supervised for accuracy and cross-validated against facility data to ensure reliable baseline and intervention measurements.

Data Analysis

SPSS handled quantitative analysis, while thematic analysis explored qualitative insights, ensuring credibility through triangulation.

Results

Table 1: Economic Factors Influencing Participation

Factor	Barrier Impact	Facilitator Impact	Illustrative Quote
Time opportunity cost	High	-	"Every hour in meetings is lost income"
Transport costs	Medium	-	"Boat fuel to reach meeting venue is expensive"

Contribution requirements	High	-	"They always ask for money we don't have"
Economic incentives	-	High	"Water business helps me and helps community"
Flexible scheduling	-	Medium	"Evening meetings allow us to work first"
In-kind contributions	-	Medium	"We give labor instead of money"

Table 2: Factors Associated with Knowledge Levels (Chi-square Analysis)

Variable	Good/Excellent Knowledge	Poor Knowledge	X^2	p-value	Cramer's V
Gender			8.34	0.004	0.109
Male	134 (34.5%)	255 (65.5%)			
Female	79 (26.3%)	221 (73.7%)			
Education			89.67	<0.001	0.358
No formal	87 (61.3%)	55 (38.7%)			
Primary	78 (39.4%)	120 (60.6%)			
Secondary	61 (22.8%)	206 (77.2%)			
Tertiary+	7 (5.1%)	129 (94.9%)			
Age Group			23.45	<0.001	0.183
18-35 years	78 (25.4%)	229 (74.6%)			
36-55 years	112 (30.2%)	259 (69.8%)			
>55 years	23 (35.4%)	42 (64.6%)			
Occupation			45.23	<0.001	0.254
Fishing	123 (42.9%)	164 (57.1%)			
Farming	56 (41.8%)	78 (58.2%)			

Trading	34 (21.8%)	122 (78.2%)			
Civil servant	8 (11.1%)	64 (88.9%)			
Other	12 (15.8%)	64 (84.2%)			
Income			67.89	<0.001	0.312
<₦50,000	189 (35.5%)	343 (64.5%)			
≥₦50,000	24 (14.4%)	142 (85.6%)			

Education and income strongly predicted knowledge, with 94.9% of tertiary-educated participants versus 38.7% without formal education showing good/excellent knowledge (Cramer's V = 0.358 and 0.312, respectively), highlighting the role of socioeconomic factors in health literacy.

Table 3: Item-Level Attitude Analysis

Attitude Statement	Baseline % Agree	6-Month % Agree	Change	p-value*
Community should work together	67.8%	89.3%	+21.5%	<0.001
NOT solely government responsibility	34.5%	67.2%	+32.7%	<0.001
Willing to contribute time	45.6%	73.4%	+27.8%	<0.001
Community participation effective	38.9%	71.2%	+32.3%	<0.001
Traditional practices important	78.9%	82.3%	+3.4%	0.089
Women should be involved	56.7%	78.9%	+22.2%	<0.001
Youth participation important	61.2%	81.4%	+20.2%	<0.001
Trust community health workers	48.9%	76.5%	+27.6%	<0.001

Community monitoring necessary	41.2%	72.3%	+31.1%	<0.001
Financial contributions improve sustainability	31.2%	58.9%	+27.7%	<0.001
Meetings NOT waste of time	43.4%	69.8%	+26.4%	<0.001
External organizations should NOT lead all	29.8%	61.2%	+31.4%	<0.001

***McNemar's test**

The largest attitude shifts were in responsibility for water and sanitation (32.7% more rejected sole government responsibility) and belief in community effectiveness (32.3% increase). High baseline support for integrating traditional practices (78.9%) showed little change, indicating it was already valued.

Discussion

The study demonstrates that effective community participation in waterborne disease prevention requires integration with local socio-economic, cultural, and environmental realities, fostering trust, social capital, and ownership. Interventions such as women-only groups and economic incentives enhanced engagement, while traditional beliefs persisted alongside biomedical knowledge. Knowledge improved significantly (mean score $6.8 \rightarrow 8.9$, $p < 0.001$), particularly for practical behaviors, though misconceptions like malaria transmission remained, reflecting an "inverse knowledge equity" effect (Mehboob et al., 2018; Tsekleves et al., 2022; Rasool et al., 2024). Attitudes shifted toward shared accountability, with active WASH engagement strongly predicting positive perceptions (OR = 3.45, McNemar's $\chi^2 = 124.6$, $p < 0.001$). Overall, participatory, context-sensitive, and culturally congruent approaches proved essential for sustainable knowledge translation, behavior change, and WASH outcomes (Essiet et al., 2024; Rasool et al., 2024).

Recommendation

Community health extension workers should integrate participatory learning and action (PLA) tools into routine interactions to facilitate experiential, trust-based engagement that drives sustainable waterborne disease prevention practices.

Conclusion

In conclusion, this study underscores that sustainable waterborne disease prevention in riverine Nigerian communities hinges on participatory, context-sensitive interventions that align with local

socio-economic, cultural, and environmental realities. Effective engagement is facilitated by trust-building, social capital, ownership, women's inclusion, and economic incentives, while traditional beliefs and structural inequities persist. Significant improvements in knowledge, attitudes, and practices highlight the critical role of culturally congruent, experiential approaches in achieving lasting WASH outcomes (Tsekleves et al., 2022; Rasool et al., 2024; Essiet et al., 2024).

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