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Assessment on Knowledge and Preventive Practice of Cholera Infection among Residents of Selected Local Government Areas of Oyo State Nigeria

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Abstract:

This study investigated the knowledge and preventive practices related to cholera among residents of Ido and Egbeda Local Government Areas of Oyo State, Nigeria. Using a cross-sectional descriptive survey design, data were collected from 440 residents selected through a multistage sampling technique. A structured questionnaire assessed socio-demographic characteristics, knowledge of cholera infection, and preventive practices. Data were analysed using descriptive statistics and chi-square tests. Findings revealed that general awareness of cholera among residents was relatively high; however, important gaps existed in technical and practical knowledge, particularly regarding appropriate treatment options, vaccination, and comprehensive prevention strategies. While many respondents recognised basic preventive measures such as boiling water, washing vegetables, and maintaining environmental sanitation, a substantial proportion still lacked accurate and actionable information. Preventive practices were generally moderate, with strong adherence to waste disposal and food hygiene behaviours, but notable inconsistencies were observed in critical practices such as regular handwashing with soap, use of protective equipment when handling waste, and prompt reporting of suspected cases to health facilities. A statistically significant, though weak, positive relationship was found between knowledge and preventive practice, indicating that higher knowledge tends to promote better behaviour, but is not sufficient on its own. The study concludes that broad awareness does not automatically translate into effective preventive action. Targeted, context-sensitive health education that emphasizes practical skills, correct treatment pathways, and sustained behaviour change is essential for strengthening community preparedness and reducing cholera transmission in the study areas.

Keywords: Cholera; Knowledge; Preventive practices; Public health; Community health,

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Introduction

The epidemiological landscape of cholera is highly dynamic and shaped by interconnected structural and environmental forces, including climate change, rapid urbanisation, and population growth. Climate change intensifies the frequency and severity of extreme weather events such as floods and droughts, which compromise water quality, overwhelm sanitation systems, and facilitate the contamination of drinking water sources. These conditions create ideal pathways for the transmission of Vibrio cholerae. Rapid urbanisation, particularly in low- and middle-income countries, has further exacerbated vulnerability by driving the expansion of informal settlements characterised by overcrowding, inadequate waste management, and limited access to potable water. Such environments provide fertile ground for cholera transmission and recurrent outbreaks (Eneh et al., 2024). Understanding these broader determinants is essential for designing comprehensive and sustainable cholera control strategies that extend beyond emergency response to address the underlying drivers of risk. Despite decades of global effort, cholera remains a significant public health challenge, disproportionately affecting populations living in conditions of poverty, poor sanitation, and limited access to clean water.

Recent global data underscore the persistent burden of the disease. The World Health Organization reported a cumulative total of 733,956 cholera cases and 5,162 deaths from 33 countries across five regions between January and November 2024. Although a decline in reported cases was observed in mid-2025, the number of deaths rose markedly during the same period, reflecting a troubling increase in case fatality rates. This pattern highlights not only the continued transmission of the disease but also systemic weaknesses in access to timely and effective care. Beyond its immediate health consequences, cholera exerts profound socio-economic impacts on affected communities and national economies. Outbreaks place heavy strain on already fragile healthcare systems, divert scarce resources, and disrupt essential services. Illness and death reduce household productivity and income, while fear of infection can impede social interaction, commerce, and tourism. These ripple effects deepen economic hardship and reinforce cycles of vulnerability and poverty (GAVI, 2024). The recurrent nature of outbreaks in high-risk settings illustrates the limitations of short-term emergency responses and underscores the necessity of long-term investments in water, sanitation, and hygiene infrastructure, alongside community-based prevention strategies.

At the individual and community levels, knowledge, attitudes, and practices play a central role in shaping cholera transmission dynamics. Knowledge equips individuals with an understanding of the disease, including its causes, symptoms, routes of transmission, and preventive measures. Preventive practice refers to the concrete behaviours adopted to reduce exposure and spread, such as handwashing, safe food handling, water treatment, and appropriate waste disposal (Akel et al., 2023). These two components are foundational to public health interventions. Knowledge is often assumed to be the catalyst for behaviour change; however, empirical evidence consistently demonstrates that awareness alone does not guarantee the adoption of safe practices. Attitudes shaped by cultural beliefs, past experiences, and levels of trust in health authorities mediate how knowledge is interpreted and acted upon. In many settings, individuals may recognise the risks associated with contaminated water or poor hygiene yet continue hazardous behaviours due to social norms, economic constraints, or skepticism toward official guidance.

Research across African contexts illustrates this disjunction between knowledge and practice. Communities frequently demonstrate high awareness of cholera symptoms and transmission pathways, yet persist in behaviours that heighten risk, such as consuming untreated water or

delaying care-seeking (Orimbo et al., 2020). These patterns are often rooted in structural barriers, including lack of access to clean water, inadequate sanitation facilities, and financial limitations that restrict the feasibility of recommended practices. Cultural traditions and deeply ingrained habits further shape responses to health messaging, while mistrust of authorities or previous negative experiences with health systems may undermine compliance. Such evidence underscores that information dissemination, although necessary, is insufficient in isolation. Effective cholera prevention requires interventions that address attitudinal and contextual barriers, provide practical support, and engage communities as active partners rather than passive recipients of messages.

Sustainable cholera control therefore demands a multidimensional approach that integrates structural reforms with behavioural and social interventions. Investments in water and sanitation infrastructure must be complemented by community-centred education that is culturally sensitive and contextually relevant. Health communication strategies should move beyond didactic messaging to incorporate dialogue, trust-building, and locally meaningful narratives. Empowering communities to participate in risk assessment, planning, and response fosters ownership and enhances the likelihood of sustained behavioural change. By aligning knowledge with enabling environments and supportive social norms, public health programmes can bridge the gap between awareness and action. In this way, cholera prevention becomes not merely a matter of emergency response, but a pathway toward broader resilience, equity, and health system strengthening in vulnerable populations.

The aim of this study was to investigate the knowledge and preventive practice of cholera among residents in selected Local Government Areas (Ido and Egbeda LGAs) of Oyo State. Specific objectives of the study were to:

i. assess the knowledge of cholera infection among residents of Ido and Egbeda Local Government Areas of Oyo State; and
ii. ascertain the preventive practice of residents regarding cholera infection in Ido and Egbeda Local Government Areas of Oyo State.

Methods and Materials

This study adopted a cross-sectional descriptive survey design, which enabled the collection, recording, analysis, and interpretation of data on existing conditions within the study population. The design was considered appropriate because it facilitates the systematic description of phenomena as they occur naturally and allows inferences to be drawn from a representative subset of a larger population. The study focused on residents of Ido and Egbeda Local Government Areas of Oyo State, Nigeria. Based on population projections from the National Population Commission, Ido had an estimated population of 123,549, while Egbeda was projected at 417,693, yielding a combined population of 541,242. From this population, a sample size of 440 respondents was drawn. The sample size was determined using Taro Yamane's formula at a 5% level of significance, producing a base sample of 400, which was increased by 10% to account for non-response and incomplete questionnaires. A multistage sampling procedure was employed. First, five wards were randomly selected from each Local Government Area using simple random sampling by balloting. Second, disproportionate stratified sampling was applied to allocate forty-four respondents to each of the ten selected wards. Finally, simple random sampling was used within each ward to select respondents, ensuring that every eligible resident had an equal and independent chance of participation.

Data were collected using a structured questionnaire titled Knowledge, Attitude and Preventive Practice of Cholera Infection Questionnaire (KAPPCIQ). The instrument consisted of four sections. Section A captured socio-demographic information such as gender, age, education, occupation, marital status, and religion. Section B assessed knowledge of cholera infection using dichotomous "Yes" and "No" responses. Section C measured attitudes toward cholera infection on a four-point modified Likert scale ranging from Strongly Agree to Strongly Disagree. Section D examined preventive practices using a four-point scale of Very Often, Often, Sometimes, and Never. The instrument was designed to elicit information on the independent variables—knowledge and preventive practices. To ensure validity, the draft questionnaire was reviewed by the researcher's supervisor and other lecturers in the Department of Nursing Science, Lead City University, Ibadan. Their feedback ensured that the items adequately reflected the study objectives and achieved face and content validity. Necessary revisions were made prior to field administration to improve clarity, relevance, and measurement accuracy.

Reliability of the instrument was established through a pilot study conducted in Lagelu Local Government Area among 44 respondents, representing 10% of the sample size and possessing similar characteristics to the main study population. These participants were excluded from the final study. Responses from the pilot test were analysed using Cronbach's alpha to assess internal consistency, yielding a reliability coefficient of 0.72, which was considered acceptable for the study. For data collection, a formal letter of introduction was obtained from the Head of the Department of Nursing Science, Lead City University, and submitted alongside the research proposal to the State Ministry of Health for ethical clearance. Permission was subsequently obtained from the authorities of the selected Local Government Areas. Four trained research assistants supported the researcher during fieldwork. Participants were approached, informed about the study, and provided written consent before completing the questionnaires. Instruments were administered on-site and retrieved immediately to minimise loss and ensure completeness.

Completed questionnaires were organised, coded, and entered into the Statistical Package for Social Sciences (SPSS) version 23 for analysis. Data cleaning and verification were performed prior to analysis. Descriptive statistics, including frequencies and percentages, were used to summarise socio-demographic characteristics and to address the research questions on knowledge, attitudes, and preventive practices. Composite scores were generated to determine respondents' levels across these domains. Pearson's chi-square test was employed to test the study hypotheses at a 0.05 level of significance. Ethical approval for the study was obtained from the Ministry of Health, Ibadan, with reference number NHREC/OYOSHRIEC/10/11/22. Participation was voluntary, and respondents were fully informed of the study's purpose and benefits. Confidentiality was strictly maintained by ensuring anonymity, instructing participants not to write their names on questionnaires, and allowing responses to be completed in private. All data were treated with utmost confidentiality and used solely for research purposes.

Results

Table 1 : Socio-demographic characteristics of respondents

Variables	Category	Frequency	Percentage
Gender	Female	226	58.7
	Male	159	41.3
Age (in years)	18-27 years	78	20.3

	28-37 years	91	23.6
	38-47 years	81	21.0
	48-57 years	74	19.2
	58 years and above	61	15.8
Educational background	No formal education	81	21.0
	Primary education	67	17.4
	Secondary education	103	26.8
	Tertiary education	134	34.8
Occupation	Civil servant	39	10.1
	Traders	141	36.6
	Unemployed	60	15.6
	Retiree	26	6.8
	Artisan	53	13.8
	Private enterprise	66	17.1
Marital status	Single	78	20.3
	Married	219	56.9
	Divorced	55	14.3
	Others	33	8.6
Religion	Christianity	175	45.5
	Islam	149	38.7
	Traditional religion	42	10.9
	Others	19	4.9

Mean age = 40.93
Source: Field Survey, 2025

Table 1 showed the socio-demographic characteristics of residents in Ido and Egbeda Local Government Areas of Oyo State. The study revealed a higher proportion of females (58.7%) compared to males (41.3%). In terms of age distribution, respondents were fairly spread across age categories, with the largest group being 28–37 years (23.6%), followed closely by 38–47 years (21.0%) and 18–27 years (20.3%), with a mean age of 40.93 years (±14.38) revealing a mature sample with representation from both young adults and older adults. Educational background varied considerably, with a significant proportion of respondents having tertiary education (34.8%) and secondary education (26.8%), while 21.0% had no formal education, and 17.4% had only primary education. This revealed that while a fair number of respondents were educated, a notable segment still lacked formal schooling, which may influence their participation in socio-economic activities.

Occupationally, traders constituted the largest group (36.6%), followed by private enterprise workers (17.1%) and artisans (13.8%), revealing the dominance of informal sector activities. Civil servants (10.1%) and retirees (6.8%) formed smaller proportions, while the unemployed accounted for 15.6%. In terms of marital status, 56.9% of the residents were married, with singles (20.3%) and divorced individuals (14.3%) forming significant

subgroups. Regarding religion, Christianity (45.5%) and Islam (38.7%) were the dominant faiths, while traditional religion (10.9%) and others (4.9%) were less represented.

Table 2 : Knowledge of Cholera Infection

Statement	No Freq. (%)	Yes Freq. (%)
Have you heard of cholera?	81(21.0%)	304(79.0%)
Incubation period of Cholera is 2-5 days	191(49.6%)	194(50.4%)
Contact with contaminated water or food can transmit Cholera	144(37.4%)	241(62.6%)
Rehydration therapy is the primary treatment for cholera	229(59.5%)	156(40.5%)
There is a vaccine available for cholera	190(50.6%)	190(49.4%)
Cholera can be prevented by improving water sanitation	187(48.6%)	198(51.4%)
Proper sewage disposal can reduce cholera transmission	182(47.3%)	203(52.7%)
People with weak immune systems are more vulnerable to cholera	186(48.3%)	199(51.7%)
Cholera mostly affects areas with limited access to healthcare	173(44.9%)	212(55.1%)
Knowledge about cholera symptoms helps in early diagnosis	190(49.4%)	195(50.6%)
Educating the public can help control cholera spread	140(36.4%)	245(63.6%)
Boiling drinking water helps prevent cholera	168(43.6%)	217(56.4%)
Washing vegetables before eating prevents cholera	132(34.3%)	253(65.7%)
Bacteria (bacterium vibrio cholera) causes cholera	191(49.6%)	194(50.4%)
Human is the reservoir for cholera	165(42.9%)	220(57.1%)
Contaminated water and food as well as poor sanitation are mode of cholera transmission	188(48.8%)	197(51.2%)
Watery diarrhea, vomiting, dehydration and leg cramps are the clinical signs of cholera	160(41.6%)	225(58.4%)
Poor sanitation, unsafe drinking water and poor hand hygiene are factors that predispose to cholera	174(45.2%)	211(54.8%)
Children, adult, elderly age groups that are at risk of cholera	144(37.4%)	241(62.6%)

Mean score of Knowledge of Cholera Infection=2.96

Source: Field Survey, 2025

Table 2 showed that residents of Ido and Egbeda Local Government Areas demonstrated a high level of knowledge of cholera infection, with a mean score of 2.96. While awareness of cholera was generally high (79.0% had heard of it), specific knowledge about incubation period, treatment, prevention, and risk factors varied significantly. 40.5% correctly identified rehydration therapy as the primary treatment, and knowledge about the availability of a vaccine was evenly split (49.4% vs. 50.6%). Preventive measures such as boiling water (56.4%), washing vegetables (65.7%), and proper sewage disposal (52.7%) were better recognized, but nearly half of respondents still lacked this awareness. Similarly, more than 50.0% of the residents identified cholera reservoirs (57.1%), transmission mode (51.2%), and clinical signs (58.4%), though a large proportion still held misconceptions. The study revealed that while general awareness is high, gaps remain in technical and practical knowledge about cholera's prevention, treatment, and risk factors, revealing the need for

targeted health education interventions to strengthen community preparedness and response.

Table 3: Level of knowledge of cholera infection among residents

Knowledge of Cholera Infection	Frequency	Percentage
Low	40	10.4
Moderate	105	27.3
High	240	62.3
Total	385	100.0

Source: Field Survey, 2025

Table 3 revealed that majority of residents in Ido and Egbeda Local Government Areas possess a high level of knowledge of cholera infection, as 62.3% of respondents demonstrated high knowledge, while 27.3% had a moderate level of knowledge, and only 10.4% exhibited low knowledge. This indicated that awareness campaigns, public health interventions, and possibly previous exposure to cholera outbreaks contributed to the relatively strong knowledge base within the communities. However, the presence of about 37.7% of residents with either low or moderate knowledge revealed that there are still knowledge gaps that could hinder effective prevention and control of cholera.

Table 4: Preventive Practice of Cholera Infection

Statement	Never	Sometimes	Often	Very often	Mean ()	S.D.
Do you properly dispose of household waste?	16 4.2%	54 14.0%	72 18.7%	243 63.1%	3.41	0.88
Do you always wash your hand before and after having contact with contaminated object?	26 6.8%	48 12.5%	211 54.8%	100 26.0%	3.00	0.81
I wash my hand with water and soap before eating	70 18.2%	100 26.0%	123 31.9%	92 23.9%	2.62	1.04
I ensure proper washing of hands after touching contaminated object or surfaces	36 9.4%	125 32.5%	158 41.0%	66 17.1%	2.66	0.87
I report suspected cholera cases at the nearest health facility	35 9.1%	108 28.1%	142 36.9%	100 26.0%	2.80	0.93
Do you ensure food hygiene practices are followed at home	32 8.3%	86 22.3%	153 39.7%	114 29.6%	2.91	0.92
Do you regularly disinfect surfaces at home	33 8.6%	76 19.7%	162 42.1%	114 29.6%	2.93	0.91
How often do you wear gloves when handling wastes	39 10.1%	97 25.2%	176 45.7%	73 19.0%	2.74	0.88
Do you avoid overcrowded areas during cholera	22 5.7%	104 27.0%	152 39.5%	107 27.8%	2.89	0.88

outbreaks						
Do you drink only treated or bottled water	14 3.6%	113 29.4%	155 40.3%	103 26.8%	2.90	0.84
Do you store food hygienically at home and at work?	11 2.9%	75 19.5%	184 47.8%	115 29.9%	3.05	0.78
Do you check the cleanliness of food vendors before buying?	39 10.1%	68 17.7%	146 37.9%	132 34.3%	2.96	0.96

Mean score of Preventive Practice=2.90

Source: Field Survey, 2025

Table 5 revealed that residents of Ido and Egbeda Local Government Areas generally demonstrated moderately high levels of preventive practices against cholera, with a weighted mean of 2.90. The most frequently reported preventive measures included proper disposal of household waste (81.8% practiced often or very often), checking the cleanliness of food vendors before buying (72.2%), and hygienic food storage at home and work (77.7%). Similarly, a significant proportion reported regular disinfection of surfaces (71.7%) and adherence to food hygiene practices (69.3%). The study revealed that environmental sanitation and food safety were major preventive actions embraced by residents, reflecting a relatively strong commitment to practices that directly limit cholera transmission.

On the other hand, the study indicated some inconsistencies in hand hygiene, a critical preventive behaviour. While over 80% reported washing hands before and after contact with contaminated objects, fewer respondents maintained consistent handwashing with soap before eating, with 44.2% either never or only sometimes practicing it. Additionally, only 62.9% often or very often reported suspected cholera cases to health facilities, and glove usage while handling waste was relatively low, with 35.3% reporting they never or rarely used gloves. The study therefore revealed that the overall preventive practices are encouraging, targeted interventions focusing on consistent handwashing with soap, use of protective equipment, and prompt case reporting remain essential to strengthen cholera control in the area.

Table 6: Chi-Square Analysis Showing the Association between Knowledge and Preventive Practice of Cholera infection

Preventive practice	Knowledge of Cholera Infection			Total	Contingency coefficient	Pearson Corr.	-value	df	P-value
	Low	Moderate	High						
Poor	5 16.7%	16 53.3%	9 30.0%	30 100.0%	0.192	0.166*	14.794	2	<.001
Good	35 9.9%	89 25.1%	231 65.1%	355 100.0%					
Total	40 10.4%	105 27.3%	240 62.3%	385 100.0%					

* Significant at 0.05 level

Source: Field Survey, 2025

Table 6 revealed a significant relationship between knowledge and preventive practices of cholera infection among residents of Ido and Egbeda LGAs. The study revealed a chi-square value (χ^2 = 14.794, df = 2, p < .001) revealing that this association is statistically significant. The study showed that 65.1% of respondents with high knowledge demonstrated good preventive practices compared to only 30.0% of those with low knowledge. The contingency coefficient (0.192) and Pearson correlation (r = 0.166, p<0.05) indicated a weak but significant positive relationship, revealing that although higher knowledge promotes better preventive practices, other factors may also influence preventive behaviour.

Discussion of Findings

The findings of this study on socio-demographic characteristics of the respondents revealed that, there was a slight female predominance (58.7%) compared to males (41.3%). Also, the respondents were fairly spread across age categories, with the largest group being 28–37 years, followed closely by 38–47 years and 18–27 years, with a mean age of 40.93 years. Regarding the educational status, a notable segment still lacked formal schooling, which may influence their participation in socio-economic activities as a significant proportion of respondents have tertiary education and secondary education, while 21.0% had no formal education, and 17.4% had only primary education.

The occupational landscape was dominated by informal sector activities, as traders constituted the largest group, followed by private enterprise workers and artisans. Civil servants and retirees formed smaller proportions, while the unemployed accounted for 15.6%. Also, the marital status, 56.9% of the residents were married, with singles (20.3%) and divorced individuals (14.3%) forming significant subgroups. Regarding religion, Christianity (45.5%) and Islam (38.7%) were the dominant faiths, while traditional religion (10.9%) and others (4.9%) were less represented. These demographic characteristics are crucial for understanding the context in which health interventions are implemented. Similar demographic profiles, particularly the presence of diverse educational backgrounds and a strong informal sector, are common in many Nigerian communities and can influence the effectiveness of public health campaign (World Health Organization 2024). For instance, studies on health communication often highlight the need for varied approaches to reach populations with differing literacy levels and occupational demands (World Health Organization 2024).

Most respondents have heard of the disease, however, the study also identified significant gaps in specific technical and practical knowledge regarding the incubation period, primary treatment (rehydration therapy), vaccine availability, and certain preventive measures. For example, only 40.5% correctly identified rehydration therapy as the primary treatment. Despite a high overall knowledge score (62.3% demonstrating high knowledge), over one third of residents still exhibited low or moderate knowledge, indicating persistent gaps that could impede effective prevention and control. A study in similar endemic regions of Nigeria also found varying levels of knowledge among healthcare workers, suggesting that even within informed groups, specific knowledge gaps can exist (United Nations Children Fund 2024). Similarly, a report highlighted that increasing awareness about the cholera vaccine could further enhance disease management and prevention efforts, implying that specific knowledge about interventions like vaccination remains crucial (United Nations News 2024). While general awareness is high, gaps remain in technical and practical knowledge about cholera's prevention, treatment and risk factors, aligns with the broader understanding that targeted health education interventions are necessary to strengthen community preparedness and response (The Lancet 2025).

A significant majority considered cholera a serious public health threat, and a high proportion expressed willingness to attend prevention programmes and support public awareness campaigns. Residents also recognized the importance of safe drinking water and believed cholera could be eradicated with the right approach. The result likewise revealed that residents demonstrated moderately high levels of preventive practices against cholera. Key practices included proper disposal of household waste, checking cleanliness of food vendors and hygienic food storage. These findings suggest a strong commitment to environmental sanitation and food safety, which are crucial for limiting cholera transmission. This is consistent with the literature that highlights improved Water, Sanitation, and Hygiene (WASH) interventions as fundamental to cholera prevention (Ogbeyi .et al, 2017).

Conclusion

This study examined knowledge and preventive practices relating to cholera among residents of Ido and Egbeda Local Government Areas in Oyo State using a descriptive survey approach to assess awareness, perceptions, and behaviours within the communities. The findings reveal that while general awareness of cholera is relatively high, important gaps remain in practical and technical understanding, particularly regarding appropriate treatment and comprehensive prevention strategies. Although many residents recognise basic preventive measures, a substantial proportion still lack accurate and actionable knowledge. The socio-demographic profile of the population, characterised by varied educational attainment and a strong presence of informal sector workers, provides important context for understanding health-seeking behaviour and responses to public health interventions. Overall, the study demonstrates that broad awareness does not necessarily translate into adequate or effective preventive practice. These gaps highlight the need for targeted, context-sensitive health education that moves beyond general messaging to focus on practical skills, correct treatment pathways, and sustained behaviour change within the community.

Recommendations

Based on the findings of this study, the following recommendations are made:

1. Public health authorities and non-governmental organizations should design and implement targeted health education programs that go beyond general awareness.
2. Given the inconsistencies in hand hygiene practices, particularly handwashing with soap before eating and intensive campaigns are needed.
3. Efforts should be made by the residents to encourage prompt reporting of suspected cholera cases to the nearest health facilities.
4. Interventions should also be carried out to educate and facilitate the practical application of knowledge.
5. Government should organize public health strategies and consider the socio-economic and cultural contexts of the communities. This involves engagement with local leaders, religious figures and community elders to endorse and promote cholera prevention measures.

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