PERCEIVED ROLES OF PRIMARY HEALTH CARE SERVICES IN THE PREVENTION AND CONTROL OF CHOLERA AMONG BWARI RESIDENTS, ABUJA

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Abstract

The objectives were to assess whether (i) Health Education (ii) supply of essential drugs (iii) Prevention and control of endemic are perceived roles of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja. The research design adopted for the study was a descriptive research design of the survey type. 454 respondents were sampled for the study among Bwari Residents. Inferential Statistics of one sample t-test at 0.05 significance level was used to test the three research null hypotheses set for the study. The findings of the study revealed that: Health education is role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja. because cal. t-val. (27.80) exceeds the crit. t-val. of 1.960 at df (454) Essential drug is role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja because the cal. t-val. (21.33) exceeds the crit. t-val. of 1.960 at df (454) Prevention and control of endemic and epidemic diseases is role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja because the cal. t-val. (19.32) exceeds the crit. t-val. of 1.960 at df (454). This study concluded that health education, supply of essential drugs and prevention and control of endemics and epidemic diseases are roles of Primary Health Care Services. It was recommended that the government should intensify efforts in community health education, regular and sufficient supply of essential drug to manage cholera, prevention of cholera through health promotional activities.

Keywords: Fever, Health education, Sanitation, Hygiene, Cholera, Prevention

Introduction

Cholera is an acute diarrheal disease caused by Vibrio cholerae, typically spread through the ingestion of contaminated water or food and it remains a major public health concern, particularly in regions with inadequate water, sanitation, and hygiene (WASH) services (WHO, 2021). The World Health Organization (WHO) estimates that cholera causes between 1.3 to 4 million cases and up to 143,000 deaths annually worldwide (WHO, 2021). Recent outbreaks in sub-Saharan Africa, South Asia, and parts of the Middle East have highlighted the continued global threat posed by cholera (Tauxe, & Mintz, 2007). Factors such as climate change, urban crowding, and political instability have significantly contributed to the increased vulnerability of populations to cholera transmission (Moore et al., 2022).

Cholera is an infection of the small intestine by some strains of the bacterium Vibrio cholerae, symptoms may range from none, to mild, to severe, the classic symptom is large amounts of watery diarrhea that lasts a few days, vomiting and muscle cramps may also occur (Tauxe, & Mintz, 2007). Diarrhea can be so severe that leads within hours to severe dehydration and electrolyte imbalance, this may result in sunken eyes, cold skin, decreases skin elasticity, and wrinkling of the hands and feet, the dehydration may result in the skin turning bluish, symptoms start two hours to five days after exposure (CDC, 2014).

Huq, Sack, Nizam, Longini, Nair, and Ali, (2005) noted that overflowing of latrines and contamination of wells and surface water, seasonal modification of water sources for consumption and human behavior may play a role in the occurrence of cholera outbreaks, control of cholera outbreaks requires effective surveillance and response systems which are frequently sub-optimal in developing countries often lacking robust data collection, collation, analysis, interpretation and responses. Poor detection and delay responses to cholera outbreaks can result in geographical spread of the disease and consequently high mortality and morbidity rates, failure to control local outbreaks and prevention of cholera between regions could result in spread of cholera outbreaks to neighboring regions (Telmessani, 2010).

Cholera is typically transmitted to humans by either contaminated food or water, most cholera cases in developed countries are as a result of transmission by food, while in the developing world it is more often water (Marin, Thompson & Freitas, 2013). Food transmission occurs when people harvest sea food such as oysters in waters infected with sewage, as vibrio cholera accumulates in zooplankton and the oysters eats the zooplankton, people infected with cholera often have diarrhea, and disease transmission with the symptom of highly liquid stool, colloquially referred to as rice-water, as result of consumption of contaminated water and food (Telmessani, 2010). The source of the contamination is typically as result of discharges of untreated diarrheal is allowed to get into waterways, underground water or drinking water supplies. Drinking any infected water and eating any foods washed in such water, as well as consumption of shellfish living in the affected waterway can cause a person to cholera infection (Marin, Thompson & Freitas, 2013).

The prevention and control of endemic and epidemic diseases such as cholera remain significant public health challenges, especially in low- and middle-income countries where access to clean water, sanitation, and healthcare services is limited, cholera, an acute diarrheal disease caused by Vibrio cholerae, is endemic in many parts of Africa and Asia and is prone to cause devastating epidemics when conditions favor its rapid spread, the disease continues to contribute to high morbidity and mortality, particularly in vulnerable populations lacking adequate sanitation and safe drinking water (World Health Organization [WHO], 2023).

The disease is considered both an indicator and a consequence of underdevelopment, its persistence is closely linked with poverty, displacement, and humanitarian crises (Moore et al., 2022). Recent outbreaks in Yemen, Nigeria, and Haiti were exacerbated by conflict, political instability, and breakdowns in public health infrastructure, conditions that disrupt access to clean water and sanitation systems for example, in Yemen, the largest cholera outbreak in recent history occurred in a context of war and the collapse of healthcare services (WHO, 2021). Aigbiremolen (2014) also submitted that cholera is an acute enteric infection caused by the bacterium Vibrio (V.) cholerae of serogroup O1 or O139, it is a water borne disease of important public health with an estimated number of 3 to 5 million cases annually and 100,000 to 150, 000 deaths yearly. Outbreaks are linked to the consumption of unsafe water and food, poor hygiene and sanitation, cholera often follows natural or man-made disasters which can lead to internal displacement of persons and subsequent unstable living conditions associated with contamination of food and water sources (Shikanga, Mutonga , Abade , Amwayi , Ope , Limo , Mintz , Quick, Breiman & Feikin, 2008).

Primary Health Care (PHC) remains the foundation of effective health systems worldwide, rooted in the principles outlined by the Alma-Ata Declaration (1978) which was adapted during the international conference on primary health care held in Alma-Ata, the declaration was co-sponsored by WHO and the United Nation Children Fund (UNICEF) and continually reaffirmed in recent global health strategies, PHC is recognized as the most equitable and cost-effective approach to improving population health, particularly in low- and middle-income countries like Nigeria (World Health Organization [WHO], 2023).

In recent years, health education has expanded beyond traditional face-to-face communication to include mobile technology and social media, which allow health workers to reach wider audiences quickly, especially during outbreaks, these platforms are used to share important messages about hygiene practices, vaccination campaigns, and where to get treatment (Frontiers in Public Health, 2024). Ultimately, health education is not just about passing information but fostering a sense of responsibility and capability within individuals and communities to take control of their health environment, it is a foundational part of any cholera prevention program and works best when combined with improvements in water supply, sanitation, and access to healthcare (WHO, 2023). Beyond personal hygiene, health education helps communities understand the importance of proper sanitation, such as using latrines instead of open defecation, which can contaminate water sources, this communal aspect is crucial because cholera outbreaks often thrive in places where sanitation infrastructure is poor, by educating the community,

people become active participants in maintaining their environment clean, which significantly reduces the likelihood of cholera spreading (Bwire et al., 2022).

In emergencies or humanitarian crises, health education becomes critical as overcrowding and disrupted water supply increase cholera risks, here, targeted communication campaigns using local languages and trusted community figures help overcome misinformation and promote adoption of preventive measures (UNICEF, 2022). Health education involve empowering communities about the causes, symptoms, prevention, and control of cholera to reduce its spread and impact (WHO, 2023). It emphasizes promoting good hygiene practices such as regular handwashing with soap, safe water consumption, proper sanitation, and food safety. Through health education, individuals learn how to recognize early signs of cholera and seek timely treatment, which is crucial to preventing severe dehydration and death (WHO, 2021). Cholera outbreaks are often linked to poor sanitation and limited access to clean water, especially in low-resource settings, health education therefore incorporates strategies that address these root causes by teaching communities about constructing and properly maintaining latrines, protecting water sources from contamination, and using water purification methods such as chlorination or solar disinfection (SODIS) (Khan et al., 2023).

In recent years, health education strategies have evolved to include digital platforms and mobile health tools, which have expanded the reach of cholera prevention messages, mobile phones and social media are increasingly used to provide timely information during outbreaks, reinforce hygiene messages, and encourage vaccination uptake, especially in hard-to-reach populations (Frontiers in Public Health, 2024). Ultimately, health education is a critical component of cholera control that goes beyond sharing information it builds community capacity and fosters sustainable behavioral changes that, when combined with improvements in water, sanitation, and healthcare access, significantly reduce cholera transmission and save lives (WHO, 2023).

The prevention and control of endemic and epidemic diseases such as cholera remain significant public health challenges, especially in low- and middle-income countries where access to clean water, sanitation, and healthcare services is limited (World Health Organization [WHO], 2023). Historically, many communities have faced difficulties managing these diseases due to factors such as inadequate sanitation, limited access to safe water, poor healthcare infrastructure, and insufficient health education. Infectious diseases such as malaria, cholera, and tuberculosis, alongside emerging threats like COVID-19, have highlighted the urgent need for effective prevention and control strategies (Khan et al., 2023).

The recurring nature of these diseases reflects gaps in both preventive efforts and health system responsiveness (Khan et al., 2023). Primary health care (PHC) is globally recognized as the cornerstone for disease prevention and control. PHC focuses on community-centered approaches that integrate health promotion, surveillance, immunization, treatment, and rehabilitation, making it a critical platform to address both endemic and epidemic diseases. However, challenges including limited funding, shortage of trained personnel, and low community participation continue to limit the effectiveness of PHC in many settings (Bwire et al., 2022). Communities affected by cholera often face persistent challenges including poor hygiene practices, inadequate sanitation

infrastructure, and limited health education, these factors create an environment where cholera bacteria can thrive, resulting in both endemic transmission and sudden epidemic outbreaks during times of humanitarian crises or environmental disasters, the recurring nature of cholera outbreaks reflects ongoing gaps in prevention, early detection, and effective response mechanisms (Khan et al., 2023).

Statement of the Problem

Aggarwal & Ahn, (2012) noted that cholera is characterized in its most severe form by a sudden onset of acute watery diarrhea that can lead to death by severe dehydration, the extremely short incubation period - two hours to five days - enhances the potentially explosive pattern of outbreaks, as the number of cases can rise very quickly. Aggarwal & Ahn, (2012) observed that about 75% of people infected with cholera do not develop any symptom. However, the pathogens stay in their faeces for 7 to 14 days and are shed back into the environment, possibly infecting other individuals, cholera is an extremely virulent disease that affects both children and adults. Unlike other diarrhoeal infections, it can kill healthy adults within hours, individuals with lower immunity, such as malnourished children and people living with HIV, are at greater risk of death if infected by cholera (WHO, 2015).

In 2012, WHO reported 245, 393 cholera cases and 3034 death cases across 48 countries in which 67% cases occurred in African countries (WHO, 2013). Aggarwal & Ahn, (2012) noted that in 2005, Nigeria had 4, 477 cases and 174 deaths. There were reported cases of cholera in 2008 in Nigeria in which there were 429 deaths out of 6, 330 cases. Furthermore, 2, 304 cases were reported in Niger State in which 114 death cases reported (Abiodun, 2014). Also, in 2009, Nigeria reported 13, 691 cases and 431 deaths (Okon, 2014). Historically, many communities around Bwari Area have faced difficulties managing these diseases due to factors such as inadequate sanitation, limited access to safe water, poor healthcare infrastructure, and insufficient health education. Infectious diseases such as malaria, cholera, and tuberculosis, alongside emerging threats like COVID-19, have highlighted the urgent need for effective prevention and control strategies. The recurring nature of these diseases reflects gaps in both preventive efforts and health system responsiveness (Khan et al., 2023).

The researcher further observed that cholera infection among Bwari residents, Abuja are caused majorly by contamination of water and poor environmental conditions and many of the residents are not aware that they could get help in the areas of adequate water supply and environmental sanitation from the Primary Health Care Services in the prevention and control of cholera. It was reported by Vanguard newspaper (2014) that no fewer than 11 residents have died of cholera leaving over 40 hospitalized in Mpape a community in Bwari Area Council, Abuja. It is also observed by the researcher that there is high level of indiscriminate dumping of refuse and open defecation among Bwari residents, Abuja which led to the spread of cholera among Bwari residents, Abuja. These are just few cases of cholera that have been reported and several other cases were not reported. Therefore, this study has necessitated the need to access the perceived roles of

Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja.

Research Questions

The following research questions were raised in order to find answers to the research problem:

1. Is health education a perceived role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja?
2. Is supply of essential drugs a perceived role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja?
3. Is prevention and control of endemic and epidemic disease a perceived role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja?

Research Hypotheses

The following hypotheses were formulated to guide the study:

1. Health Education is not a perceived role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja.
2. Supply of essential drugs is not perceived role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja.
3. Prevention and control of endemic and epidemic diseases is not a perceived role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja

Methodology

The study adopted a descriptive research design of the survey type, which is appropriate for assessing the perceptions of a large population on a specific health issue in this case, the role of primary health care services in the prevention and control of cholera among residents of Bwari Area Council, Abuja. The population for the study comprised all residents of Bwari Area Council, Abuja, Nigeria, with a total population of 221,406 as reported by the National Population Commission (NPC, 2006). Given the size of the population, it was neither feasible nor necessary to study every individual. Instead, a representative sample was drawn.

A multi-stage sampling technique was employed to select the sample for the study. This procedure was chosen to ensure representativeness and manageability: Stage One – Stratified Sampling: Bwari Area Council was first divided into strata based on its districts or wards. Stratification ensured that all geographical subdivisions within the council were proportionately represented. Stage Two – Simple Random Sampling: From each stratum, specific communities or residential clusters were selected randomly using the ballot method to avoid bias. Stage Three – Purposive Sampling: Within the selected communities, respondents were chosen purposively based on eligibility criteria such as being 18 years or older, residing in the area for at least one year, and having access to

primary health care services. This ensured the participants had relevant experience and knowledge about the subject of study. A total of 455 respondents were sampled for the study. This sample size was considered sufficient to allow for meaningful statistical analysis and generalization of findings to the entire Bwari population. The instrument used for data collection was a researcher-developed questionnaire Which was validated by three experts in related field and tested for reliability. Test re-test method was used to obtain the reliability of the instrument. Pearson Product Moment Correlation was used to obtain a correlation coefficient result of r= 0.67. The instrument was administered by the researcher and two trained research assistants. Inferential Statistics used to test the three research hypotheses set for the study at 0.05 alpha level, using Cronbach alpha statistical tools

Results

Hypothesis 1: Health Education is not a perceived role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja.

Table 1: Summary of One sample t. test on Health Education as a perceived role of Primary Health Care Services

Variables	N	mean	Std. Dev	SE	df	t-value	p-value
Health Education	455	3.652	0.280	0.01314	454	27.80	0.01314

Significant at $p < 0.05$ Decision: mean = 2.50, df (454), $t = 27.80$, $p < 0.05$

Table 1 displays the one sample t-test on whether Health education is a significant influence on primary health care service in urban slum areas in Nigeria. The results show that the p-value (0.000) is less than the 0.05 significance level, and the calculated t-value (27.80) exceeds the critical t-value of 1.960 at df (454). This indicates that Health education is a perceived role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja. Consequently, the null hypothesis, which states that Health education is not a perceived role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja is rejected.

Hypothesis 2: Supply of essential drug is not a perceived role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja.

Table 2: Summary One sample t. test on Supply of essential drug is not a perceived role of Primary Health Care Services

Variables	N	Mean	Std. Dev	SE	df	t-value	p-value
Supply of Essential Drug	455	3.540	0.320	0.01503	454	21.33	0.000

Significant at $p < 0.05$ Decision: mean = 2.50, df (454), t = 21.33, $p < 0.05$

Table 2 display the one sample t test on whether the supply of essential drugs also shows a significant impact on the success of primary healthcare services related to cholera prevention and control. With a mean response of 3.540 and a t-value of 21.33, the calculated t-value (21.33) exceeds the critical t-value of 1.960 at df (454). this variable strongly affects service delivery. The availability and accessibility of medications needed to treat cholera and manage symptoms are vital for controlling outbreaks and ensuring effective healthcare response. The significant p-value (<0.05) underscores the importance of continuous drug supply chains to support primary health facilities, highlighting that shortages or irregular supplies can undermine prevention efforts and increase disease burden. the null hypothesis, which states that supply of essential drug is not a perceived role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja is rejected.

Hypothesis 3: Prevention and Control of Endemic and Epidemic Diseases is not a perceived role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja.

Table 3: Summary of One sample t. test on prevention and control of endemic and epidemic diseases is not a perceived role of Primary Health Care Services

Variables	N	Mean	Std. Dev	SE	df	t-value	p-value
Prevention and Control of Endemic and Epidemic Diseases	455	3.480	0.340	0.01593	454	19.32	0.000

Significant at $p < 0.05$ Decision: mean = 2.50, df (454), t = 19.32, $p < 0.05$

Table 3 display the one sample t test on prevention and control of endemic and epidemic diseases This variable, is also found to significantly influence primary healthcare service outcomes. The mean score of 3.480 and a t-value of 19.32 the calculated t-value (19.32) exceeds the critical t-value of 1.960 at df (454) indicate strong agreement among respondents that comprehensive prevention and control measures are key to combating cholera in Bwari. The significant p-value confirms that such strategies are indispensable components of primary healthcare. Effective endemic and epidemic disease management ensures prompt detection, containment, and mitigation of cholera

outbreaks, ultimately protecting public health and reducing mortality rates. the null hypothesis, which states that prevention and control of endemic and epidemic diseases is not a perceived role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja.is rejected.

Discussion of findings

The tested hypothesis one revealed that Health Education as a perceived role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja with a mean score of 3.652 and a highly significant t-value ($t = 27.80$, $p < 0.05$). This finding aligns with earlier research by Okoro and Ojo (2019), who emphasized that health education improves community knowledge and adoption of preventive measures, which are crucial in controlling waterborne diseases like cholera. The positive impact of health education suggests that empowering residents with information fosters better hygiene practices and early health-seeking behaviors, reducing disease transmission.

Hypothesis two revealed that Supply of Essential Drugs showed it is a perceived role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja. (mean = 3.540, $t = 21.33$, $p < 0.05$). This corroborates findings by Adeyemi et al. (2020), who reported that uninterrupted availability of critical medications such as oral rehydration salts significantly reduces cholera mortality and improves patient recovery rates. The current study highlights the importance of maintaining reliable drug supply chains to ensure effective treatment at the primary care level, thereby enhancing overall service delivery and community health outcomes.

Hypothesis three revealed that the Prevention and Control of Endemic and Epidemic Diseases also demonstrated significant influence (mean = 3.480, $t = 19.32$, $p < 0.05$), underscoring the need for systematic public health interventions beyond individual-level actions. This result is consistent with the work of Nwankwo and Chukwu (2018), who argued that comprehensive epidemic management including surveillance, sanitation improvements, and rapid outbreak response is essential for sustainable control of cholera and other endemic diseases. Effective coordination among health agencies and community stakeholders thus plays a vital role in mitigating outbreaks and protecting vulnerable populations.

Conclusion

1. Health Education is a role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja.
2. Supply of essential drugs is a role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja.
3. Prevention and control of endemic and epidemic diseases is a role of Primary Health Care Services in the prevention and control of cholera among Bwari residents, Abuja.

Recommendations

Base on the conclusion draw from the study, the following recommendation were made,

i. Government agencies and health organizations should intensify health education campaigns in Bwari to raise more awareness about cholera prevention, hygiene practices, and early symptoms. Utilizing community outreach, local media, and schools can help increase knowledge and encourage positive health behaviors.
ii. The study further recommend that Primary healthcare centers must be adequately stocked with essential medications such as oral rehydration salts and antibiotics. The government should establish reliable supply chains and monitoring systems to prevent stock outs and ensure timely access to treatments in other to intensify the services.
iii. Investments should be made to improve water, sanitation, and hygiene (WASH) facilities in Bwari. Additionally, public health authorities should enhance disease surveillance, rapid response teams, and community mobilization efforts to effectively prevent and control cholera outbreaks.

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