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Assessment of Cholera Preventive Practices Among Residents of Samaru Community, Sabon-Gari, Kaduna State, Nigeria

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Abstract

Many different countries have been ravaged by cholera epidemics over the years. Cholera is not only a problem from the past; it is also a major public health concern today. This study examined the cholera prevention practises of residents of Samaru Community, Sabon-gari, Kaduna State, Nigeria. The cross-sectional research design was used. A sample size of 376 respondents was conveniently selected from a population of 18,039 residents of Samaru Community, Sabongari, Kaduna State, Nigeria. To collect responses from the respondents, researcher-created close-ended questionnaire was employed. Descriptive statistics of frequency, percentages, mean and standard deviations were employed to address the research question while inferential statistic of one-sampled t-test and chi-square was used to test the stipulated hypotheses at 0.05 alpha level. The study revealed that the mean response on cholera prevention practices has a significant difference (t=5.652; p= 0.000). Furthermore, a significant relationship was found between respondents' characteristics and cholera prevention practices (p= 0.000). The study recommended that awareness campaigns be conducted through health talks to assist preserve the already established cholera prevention practices among the people in the study area.

INTRODUCTION

Cholera is a highly infectious illness that spreads due to a lack of safe drinking water, improper food handling, and inadequate sanitation of the environment. When the bacterium Vibrio cholera contaminates food or water, it causes illness. V. cholerae has numerous serogroups but O1 and O139 are known to trigger epidemics. Individuals irrespective of age group are affected by the virus, which causes severe spells of acute diarrhoea (rice-water stool) and vomiting.

According to Ali, Lopez, You, Kim, Sah, and Maskery (2012), most cases of cholera go undetected, with significant outbreaks of cholera occurring in developing countries. Ali et al. (2012) further emphasized that developed countries have been virtually free of cholera outbreaks for more than a century, thanks to powerful water and wastewater treatment facilities. The number of cholera cases may be significantly higher than what is reported to the WHO due to differences in case definitions, authorities' unwillingness to acknowledge and report cholera, hospitals' surveillance systems possibly being insufficient, a lack of efficient diagnostic tests, and similarities in the clinical presentation of cholera with other

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diarrhoeal diseases (Ganesan, Gupta & Legros, 2019).

As a global public health issue that kills 21,000–143,000 people annually and affects 1.3–4 million people worldwide, cholera also serves as a socioeconomic inequality indicator (Ali, Nelson, Lopez & Sack, 2015). In Africa, over 2.8 million people were infected and 91,000 people die each year. (Ali et al., 2015). From 1970 to 2011, seven African nations accounted for half of all cases: Tanzania, Congo, South Africa, Mozambique, Somalia, Angola, and Nigeria (Dan-Nwafor et al., 2019). It is challenging to estimate the exact cases of cholera in underdeveloped countries since numerous cases are not reported as a result of sociopolitical worries that an epidemic will affect the country's tourism (Nicole, 2019).

In Nigeria, 111,062 cases were registered from all the states and the Federal Capital Territory (FCT), Nigeria's capital state, with 3,604 fatalities (case fertility rate 3.2%) (National Center for Disease Control (NCDC), 2022). From January 2022, boys and girls between the ages of 5 and 14 have been most impacted, with 50% of them male and 50% of them female. Zamfara (with 11,931 cases), Kano (12,116 cases), Jigawa with (15,141 cases) and Bauchi State (with 19,558 cases) are responsible for 53% of all cases. Kaduna State had 2132 cases with 175 deaths (NCDC, 2022).

Cholera is still prevalent in Nigeria, and the northern region has witnessed a major increase in morbidity and mortality as a result of many people drinking from open wells (UNICEF, 2019). It is among the illnesses that continue to be a major health concern within Nigeria, and it has become increasingly dangerous, particularly among the poor. Those without clean water, soap, or sanitation, as well as those who are displaced, food insecure, or underprivileged, are more vulnerable. If they become infected, they become very sick and will most likely die (Ivers, 2018).

Many studies have linked cholera's persistence in Nigeria to factors such as a lack of public sanitation services, landslides, and floods that disrupt the natural balance, the free flow of sewage water into the environment, the contamination of food and water supplies with parasites and bacteria when a vital system, such as water and sewage, is damaged, and a dearth of resources, infrastructural facilities, and disaster management systems, and many others. (Denue et al., 2018). When there is a cholera outbreak, reducing transmission and illness is critical for a population's health. According to the WHO (2016), access to clean water, proper waste management, good sanitation, vector control, improved food safety procedures, improved hygiene practices, and increased education and public awareness are all necessary for successful cholera control.

Cholera is assumed to occur during the dry season in most countries; however, it is endemic in Nigeria, where it happens during the rainy and dry seasons, and its incidence tends to rise at the start of both the rainy and dry seasons (Idoga, Toycan & Zayyad, 2019). Numerous studies, however, continue to reveal that cholera-affected neighbourhoods in the country, among other things, lacked excellent water supply, had poor sanitation, were overcrowded, required appropriate public health education, and lacked good medical facilities (Denue et al., 2018). In research on cholera conducted in an area in North-central Nigeria, Dan-Nwafor et al (2019) discovered that the people lacked appropriate information and control awareness of the disease.

Despite the enormous public health effect of cholera, Denue et al (2018) note that knowledge of this avoidable illness is limited in Nigeria, particularly in the north, due to the underreporting or insufficient investigation of the majority of outbreaks. According to Elimian et al. (2019), evidence on cholera control in Nigeria is limited. This research was conducted in Samaru, a significant community in Sabon-gari, Kaduna State, Nigeria. This study will examine cholera preventive practices among Samaru community residents as well as establish the relationship between demographic characteristics and cholera preventive practices in order to discover any shortcomings among the population which may predispose individuals to a cholera epidemic, so that required actions and advice may be made to prevent a cholera outbreak. This is regarded as a crucial phase since the practices of the people who live in a specific neighbourhood are significant in the prevention and elimination of cholera.

METHOD

The study took place in Samaru community, Sabon-gari, Kaduna State, Nigeria. This study used a cross-sectional research design, which is appropriate for the study because it is a non-experimental design that is used to examine data from a specific group at one point in time. This is considered appropriate as the information elicited from sampled respondents can be used to extrapolate to the entire population. The study's population included all residents of the Samaru community, Sabon Gari, Kaduna State. The national population census in 1991 provided that Samaru had 12,978 people. The projected population by 2009 based on the 1991 census growth

rate of 3.0 which is the most recent data available at the time of this study was 18,039 (National Population Commission (NPC), 1991). A sample size of 376 respondents was conveniently selected from the population of 18,039. According to Research Advisor (2006), 376 respondents are sufficient to reflect the complete population in a population of 18,039 people. Convenience sampling was used to select the respondents that were available in the community at the time of administration of the questionnaire until the required number was obtained. The data was collected on January 15, 2022.

The instrument of data collection was a self-structured close-ended questionnaire. The instrument was split into two parts: Section A gathered demographic information, while Section B asked eight (8) inquiries about respondents' cholera prevention practises (fruits and vegetables washing before eating, regular cleaning of the environment, handwashing before eating, safe drinking water, proper disposal of all wastes, engagement in environmental sanitation, proper regular disposition of the community waste, and handwashing after using the lavatory with soap and water). The questionnaire was developed using a modified four-point Likert scale weighted: Strongly Disagree (1), Disagree (2), Agree (3), and Strongly Agree (4) and thus a benchmark (mean scores) of 2.5 was utilised to rate every response. Any mean response score greater than 2.5 is considered good cholera prevention practice, whereas any mean response score less than 2.5 is considered bad cholera prevention practice.

The data collection tool was pre-tested in Palladan Community, Zaria, Nigeria (this was outside the sampled survey area with characteristics similar to the study population), to confirm that the data collected was valid. The instrument has a Cronbach Alpha reliability coefficient of 0.895. When the computed reliability coefficient of an instrument is between 0 and 1, it is said to be reliable; the closer the reliability value is to zero, the less reliable the instrument is, and the closer it is to one, the more reliable the instrument. As a result, the study's tool for data collection is highly reliable.

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Table 1. Cholera prevention practices among residents of Samaru Community, Sabon-gari, Kaduna State

S/N	Item	SA	A	D	SD	Mean	Std Dev
1.	I always wash my fruits and vegetables before eating	84 (22.3%)	203 (54.0%)	69 (18.4%)	20 (5.3%)	2.93	0.79
2.	I clean my environment regularly to prevent cholera	98 (26.1%)	183 (48.7%)	59 (15.7%)	36 (9.6%)	2.91	0.89
3.	I always wash my hands before eating	128 (34.0%)	179 (47.6%)	48 (12.8%)	21 (5.6%)	3.10	0.83
4.	I always cover my drinking water to prevent cholera	82 (21.8%)	198 (52.7%)	57 (15.2%)	39	2.86	0.88
5.	I dispose all wastes properly to prevent the incidence of cholera	121 (32.2%)	186 (49.5%)	42 (11.2%)	27 (7.2%)	3.07	0.85
6.	I engage in environmental sanitation in my community every week	97 (25.8%)	157 (41.8%)	69 (18.4%)	53	2.79	0.98
7.	The waste in my community is properly disposed regularly to prevent cholera	89 (23.7%)	165 (43.9%)	78 (20.7%)	44	2.80	0.93
8.	I wash my hands with soap and water after using the toilet	116 (30.9%)	162 (43.1%)	65 (17.3%)	33 (8.8%)	2.96	0.91
	Aggregate Mean					2.93	0.85

SA – Strongly Agree; A – Agree; D – Disagree; SD – Strongly Disagree

*Note: Divide the overall mean scores by 8 = 2.93. An overall mean score of 2.93 denotes good cholera prevention practices.

Research Committee granted ethical permission for this work. An introduction letter was obtained from the Department of Human Kinetics and Health Education, Ahmadu Bello University in Zaria, Nigeria, and delivered to the Community Head in order to get permission to conduct the study in the community (Sarki). Descriptive statistics of frequency, percentage, mean, and standard deviation were used to answer the research question, and inferential statistics of a one-sampled t-test (which is used to determine if the mean of a population is significantly different from a known or hypothesised value) and chi-square were used to investigate the hypotheses stated.

RESULT AND DISCUSSION

According to the WHO (2019), economic growth, equitable access to clean water, and sufficient sanitation are the best long-term options for cholera control. This is done in cholera zones to guarantee the use of clean water, basic sanitation, and hygienic behaviours. Table 1 presented the mean scores of the replies on cholera preventive practises among residents of Samaru Community, Sabongari, Kaduna State. The responses for each item were computed and the practice of handwashing before eating had the highest mean score of 3.10 while engagement in environmental sanitation in the community every week with the lowest mean score of 2.79. However, the aggregate mean score of 2.93 was obtained which is higher than the benchmark score of 2.5. This denotes that residents in the study area have good cholera prevention practices.

Significant difference in the mean response of cholera prevention practices

Table 2 revealed that the mean response on cholera prevention practices has a significant difference among residents of Samaru Community, Sabon-gari, Kaduna State.

Respondent's characteristics and cholera prevention practices

Table 2. The differences in cholera prevention practices among residents of Samaru Community, Sabon-gari, Kaduna State with standard deviation

Variable	N	Mean	Std. Dev	Df	t-value	P
Cholera Prevention Practices	376	2.93	0.851	375	5.652	0.000
Test Mean	376	2.50	0.000			

Calculated $p < 0.05$; one-sample t-test

Table 3 shows the relationship between respondent's characteristics and cholera prevention practices.

In light of the cholera outbreak in Nigeria, little research on cholera preventive practices has been done. The current study examined cholera prevention practises among Samaru Community residents. The current study found that residents in the study area have good cholera prevention practices. The mean response shows a significant difference in cholera prevention practices among residents of Samaru Community, Sabon-gari, Kaduna State. Furthermore, a significant relationship exists between respondent's characteristics and cholera prevention practices.

According to the demographic data, the study had a higher male participation rate. Maintaining a tidy living area and cooking safe and healthful meals is nearly solely the job of women in Nigerian society (Anetor & Abraham, 2020). Furthermore, Odia and Odia (2019) asserted that various research done in the country's western region found that women and girls demonstrate more eco-friendly and pro-environmental attitudes. As a result, when compared to past studies, men outnumber women in this study. According to the age distributions of the respondents, more than 55% were under the age of 40. This means that the majority of the Samaru community members were youth.

It's encouraging to learn that the Samaru community has a high proportion of young people. Young individuals typically have more disease prevention information than older people due to their active participation in social media (Ali, Iqbal & Iqbal, 2016). Many young people could benefit from being encouraged to participate in environmental cleanliness to improve the aesthetic of their neighbourhood. Anetor and Abraham (2020) and Dan-Nwafor et al. (2019) have observed that young people in a community actively participate in environmental and community sanitation. The fact that the majority of respondents (47.9%) are married lends credence to the notion that married people are more concerned with taking care of their families and investing more in environmental sanitation to combat cholera. Samaru has a large number of students and government personnel, which is evident from the depending on their occupations. As previously said, students are typically informed on current events in any given society (Anetor & Abraham, 2020). The fact that the people were able to correctly respond to the majority of the questions

Table 3: Relationship between Demographic Characteristics and Cholera Preventive Practices

		CHOLERA PREVENTIVE PRACTICES					
Variable		**S. D**	**D**	**A**	**S. A**	**df**	**P**
Gender	Male	8	24	128	63	3	0.000*
	Female	9	45	73	26		
Age	< 20	2	7	30	15	9	0.000*
	21 – 40	6	5	89	61		
	41 – 60	2	46	64	8		
	> 60	7	11	18	5		
Marital Status	Single	-	17	64	38	9	0.000*
	Married	8	14	109	49		
	Divorced	3	28	10	1		
	Others	6	10	18	1		
Occupation	Trader	6	3	21	20	12	0.000*
	Farmer	2	7	33	42		
	Student	2	17	93	8		
	Civil Servant	5	39	45	16		
	Others	2	3	9	3		
Level of Education	No Education	4	4	20	42	9	0.000*
	Primary	1	5	20	25		
	Secondary	2	3	81	10		
	Tertiary	10	57	80	12		
Religion Affiliation	Islam	7	31	162	70	3	0.000*
	Christianity	10	38	39	19		

**p< 0.05 (Chi-square test)*

may be attributed to their education. By leaving the area unclean after the day's activities, traders (who make up more than 13% of the respondents) can be having a detrimental impact on the environment.

This study's findings sync with that of Rosdi, Rahman, and Haque (2019), who emphasised the importance of washing food before cooking especially vegetables, washing hands before and after eating, and practising handwashing after defecting and using the toilet to avoid cholera infection. It was also shown that there is a link between good hygiene and cholera prevention. Ogbeyi, Bito, Anefu, and Igwe (2017) discovered that 65% of the people of Wadata, a rural settlement in Makurdi, Benue State, Nigeria, had good cholera prevention practices.

Our findings are comparable to those of the Orimbo, Oyugi, Dulacha, Obonyo, Hussein, Githuku, Owiny, and Gura (2020) study in Kenya, which indicated that the majority (89.5%) of respondents practised handwashing after visiting the toilet. In Bangladesh, Rabbi and Dey (2013) discovered that 88% of people practice handwashing after defecating.

This study discovered a significant relationship between respondent demographic characteristics and cholera prevention practises, which supported the findings of Ali, Mohamed, and Tawhari (2021), who discovered a significant difference between educational levels, as well as a positive association between educational level and cholera knowledge. A statistically significant difference was found between genders, with females having considerably better cholera infection prevention practices. Anetor (2020) found that age had a substantial influence on cholera prevention. Younger individuals had better cholera prevention than older individuals. Gender was associated with cholera prevention. The level of education was also associated with prevention. Religion was associated with cholera prevention. A similar study by Ramadhani, Fidelis and Rongo (2019) found that 91.5%, 78.8%, and 76.9% of respondents aged 18-24, 25-44, and 45 years and older, respectively, ensure the safety of

their drinking water by boiling it. The difference is statistically significant.

Our study discovered good cholera preventive practices among Samaru community residents, however, in order to sustain the practises, a complete education effort will be required in the future. This study did have certain limitations. The geographic scale hampered the study because it was only undertaken in a single country, state, local government, and community. Some participants with high cholera prevention practice scores might have not been telling the truth about their actual practices; some respondents' statements on cholera prevention most likely exceeded their actual practices, thereby adding response bias to the study.

CONCLUSION

According to the findings, residents in the study area practice cholera prevention strategies. Respondent demographic characteristics (gender, age, marital status, occupation, education and religion) have a significant relationship with cholera preventive practices. Residents' cholera preventive practices can be impacted by their understanding of the disease's severity as well as their socio-cultural attitudes. It was suggested that health educators conduct awareness programmes through health talks to assist preserve the already established cholera prevention practices among the population of Samaru community, Sabongari, Kaduna State, Nigeria.

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