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ORIGINAL ARTICLE

Knowledge, Attitude, and Preventive Measures of Mothers towards Cholera in a selected Southeastern Community, Nigeria: A Cross-Sectional Study

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ABSTRACT

BACKGROUND:
Cholera remains one of the persistent public health problems in Nigeria. The 2021- 2022 cholera outbreak was endemic in many states in Nigeria with mostly young children bearing the burden.

OBJECTIVE:
This study sought to assess the knowledge, attitude and preventive measures towards cholera among mothers in Ugwunagbo Local Government Area, Abia State, Nigeria.

METHODS:
A cross-sectional design was adopted. The population of the study were women of reproductive age (18-49 years). The Cochran formula was used to derive a sample size of 381 respondents. Women within the age group 18-49 and had at least a child were included in the study, while those without children and visiting the area were excluded. Respondents were purposively selected from households using a multi-stage sampling technique. A structured and validated questionnaire with Cronbach's alpha coefficient of 0.88 was used to collect data. A response rate of 99.7% was achieved. Data were analyzed using IBM SPSS version 25 and all statistical tests were conducted at $p \leq 0.05$ level of significance. Descriptive statistics, such as mean, frequency counts, and percentages, were used to answer the research questions, while Pearson correlation was used to test the linear association between the key variables of knowledge, attitude and preventive measures.

RESULTS:
The mean score of knowledge was 29.71±4.88, for attitude was 49.95±4.26, for preventive measures was 22.09±4.56. Furthermore, there was a weak but positive significant correlation between respondent's knowledge and attitudinal disposition towards cholera, (r ([378]) = [.23], p = [< .001]) and, a weak but positive significant correlation between the knowledge of respondents and the preventive measures (r ([378]) = [.13], p = [.012]).

CONCLUSION:
Respondents had satisfactory knowledge, attitude and preventive measures towards cholera. There is a need for targeted health education programmes to promote better knowledge and very satisfactory preventive measures.

KEYWORDS:
attitude, cholera, knowledge, mothers, preventive measures

INTRODUCTION

Cholera, a severe diarrheal disease caused by an infection with the bacterium *Vibrio Cholerae*, remains a significant public health problem globally.[1] Children and adults are both at risk; however, children are at a higher risk of infection with severe morbidity and mortality.[2] Children in developing countries bear the largest burden due to the poor infrastructural and hygienic environments they live in.[3] In industrialized countries, functional modern sewage, improved sanitation practices and water treatment technologies have eliminated the disease, but in developing countries with tainted food and water due to inadequate sanitary practices the disease persists.[4] Moreover, there have always been more deaths as a result of inadequate surveillance and response to cholera epidemics.[5]

In low- and middle- income countries, there are 1.3 to 4.0 million cholera cases per year, with 21,000 to 143,000 deaths.[6] Between 2010 and 2019, researchers identified 999 suspected cholera outbreaks in 744 regions of sub-Saharan Africa.[7] In Nigeria, the 2021 outbreak affected 89% of states throughout all geopolitical zones.[8] During the different outbreak periods, children aged 5 to 14 accounted for most cases.[8]

Nigeria continues to be a key focus country for cholera, as cases are still being reported. [9] Also, Nigeria was one of ten African countries where cholera cases were documented during the COVID-19 pandemic.[10] In 2021, Nigeria reported a total of 111,062 suspected cases with 3,604deaths and a case fatality ratio of 3.2% from 33 states, and the Federal Capital territory.. .[8] Cholera outbreaks are frequent in Abia State, located in southeastern Nigeria; however, data coverage is scarce. Between January 2021 and June 2023, outbreaks occurred in 12 out of 17 local government areas (LGAs) of Abia State; during that period, 354 cases and 13 deaths were reported. Furthermore, Aba South, the LGA within which Ugwunagbo is situated, recorded the highest number of cases with children 0–9 years old being the most affected.[11]

The precipitating factors for Cholera outbreak may include socio-economic deprivation, absence of basic social amenities, inequality, and social advancement[7, 12-13]—all of which are characteristics of the affected areas in the country, including many communities in the southeast region.[11] To combat the epidemic, a coordinated and harmonized approach incorporating all necessary elements—education, WASH, immunization, monitoring, human capacity building, and boosting laboratory capacity—has been recommended as a workable solution. Since cholera is indicative of hygiene factors, as previously stated, the most effective strategy to prevent cholera outbreaks is to enhance sewage infrastructure, water sanitation, and public hygiene.[15] In addition, the public's inadequate understanding of the disease's routes of transmission and the importance of early detection and treatment of symptoms is another precipitating factor.[15] Moreover, where children are of concern, mothers, in particular, have a key role to play as primary caregivers of children.[16] It is crucial for mothers to understand the early signs of cholera and the causes that spread the disease, which serves as an indication of the overall health of the family, as well as the child.[16] Moreover, mothers in rural communities are not aware of the various factors that put them and the entire family at risk of cholera.[15,17]

Thus, this study sought to (1) assess the knowledge, attitude, and preventive measures towards cholera among mothers in Ugwunagbo in southeastern Nigeria, (2) test the relationship between knowledge and attitude towards cholera, and (3) test the relationship between knowledge, and preventive measures towards cholera among the mothers.

METHODS

Study Design

This study adopted a cross-sectional research design. All study protocols were approved by the Babcock University Health Research Ethics Committee (BUHREC 097/23).

Setting

This study was carried out in Ugwunagbo LGA of Abia State. Abia is a state in the Southeastern part of Nigeria

with the capital at Umuahia, and Aba as one of the major commercial city. It is bordered by Enugu and Ebonyi States to the North, Akwa Ibom to the East and Southeast, Rivers to the South and Southwest, and Imo and Anambra to the West. Abia State is one of Nigeria's most densely populated areas with a rich culture and history. Ugwunagbo is one of the 17 LGAs located in the Southern part of the state. It is a suburb of Aba and it has an area of 108 km^2 and a population of 97,710 according to the 2011 national census. The area has 163,732 inhabitants.

Population and sampling

The population of study were women of reproductive age (18–49) who resided in Ugwunagbo LGA. The inclusion criteria was that the women were residents of any of the stratified communities or towns in Ugwunagbo LGA and had at least one child. Those visiting and having only children older than 15 years were excluded. The sample size was derived using the Cochran formula for finite population correction (n = n/0/(1+ (n_0-1))/N) to derive a sample size of 381, where n = sample size, no = 385, and N (total population of the wards chosen randomly) = 39,988. Thus, n= 385/(1 + (385-1)/39988) = 381.33.

A multi-stage sampling technique was adopted to select respondents through three stages. In the first stage, a simple random sampling technique was used to select 4 wards out of the 15 wards in Ugwunagbo LGA. The wards were selected without bias using the random number generator function on Google. The wards selected through the random number generator after 8 trials were: Asa Amauhi, Asa Umunka, Ihie Obuaku, and Ihie Ukwu. To achieve proper coverage of the 4 wards selected, the number of women to access in each ward for the house-to-house sampling was determined using the sum total population of the 4 wards selected randomly, the population of each ward, and the sample size determined by the formula: (total population in the ward)/(sum total population of the 4 wards selected randomly) * Sample size, where sum total population of the 4 wards to be accessed = 39988 and sample size = 381. The populations in the different wards were: Asa Amauhi (7771), Asa Umunka (12381), Ihie Obuaku (6185), and Ihie Ukwu (13650). Thus, the samples from each were: Asa Amauhi (74); Asa Umunka (118); Ihie Obuaku (59); and Ihie Ukwu (130). In the second stage, household sampling was conducted in each ward. The selection process began by standing at the center of each ward. A pen or pencil was spun in a clockwise direction to determine which direction to start the house-to-house sampling process. The house closest to the center and in the direction of the pointer was first selected and visited. This direction was maintained for up to half of the sample size and then changed to the opposite direction, beginning with the closest house to the center where the other half of the sample was obtained. In the third stage, the purposive sampling technique was used to select women within the age bracket of 18–49 who had at least one child or were pregnant within the four wards to participate in the study. Any household without women who met these inclusion criteria and/or declined to participate was skipped, and a move to the next household was made. This process continued until the desired samples were obtained.

Instrumentation

The instrument for data collection was a questionnaire adapted from[15] Ali, Mohammed, and Tawhari, 2021, with English and Igbo versions. The questionnaire had four sections: Section A: socio-demographic variables (age, marital status, religion, and ethnicity); Section B: knowledge of cholera with 23 items; Section C: attitude towards cholera with 16 items; and Section D: preventive measures towards cholera with 7 items.

Knowledge on cholera. This included 23 structured items on causes, treatment, effects on population groups, symptoms, and management, such as “Cholera is spread through drinking contaminated water,” “Diarrhea is a symptom of cholera,” “Cholera affects all ages," and “Antibiotics are an effective treatment for cholera." Questions were scored using a dichotomous scale with the response options of True = 1 and False = 0.

Attitude towards cholera. This section included 17 items on risks (“staying in an unhygienic environment makes a person vulnerable to cholera”), benefits of immunization (“Vaccination can keep a person safe from cholera”), and perceived threats (“Cholera is a very serious disease for children”). Statements were answered according to a 4-point Likert scale of strongly

agree = 4, agree = 3, strongly disagree = 2, and disagree = 1.

Preventive practices towards cholera This section included 7 items related to sanitation practices ("in my house, garbage generated is collected in bags and thrown away in approved places"), storage ("water is stored in clean and airtight bottles to avoid contamination"), and personal hygiene practices ("washing hands with soap and clan water before doing anything is a regular practice in my house"). Statements were scored using the response options of always = 0, most times = 1, commonly = 2, rarely = 3, and never = 4, which is a 5-point Likert scale.

Following the development of the instrument, the questionnaire was developed and its content validated. Ambiguous items and unclear terms were removed and/or reworded for clarity. Subsequently, the instrument was pretested among a 10% sample in a ward not selected for the study. An Igbo (local language of the setting) version was developed to cater for those who preferred to answer in the local dialect. This version was developed using back translation. The version was tested among a sample of five people (2 women and 2 men) who were community health workers and were sound in both languages and was found to be adequate for use in that community. The data were analyzed using an internal consistency reliability index. The Cronbach's alpha coefficient derived was 0.88.

Following the pretest, two female research assistants fluent in both languages were trained on the modalities of the research process. The choice of females was to meet cultural appropriateness since respondents were primarily women. The orientation was a one-day, two-hour session that debriefed the assistants on the purpose of the study and process, including adhering to ethical considerations. Final data collection commenced subsequently. Up to eighty-one (81) translated Igbo versions of the research instrument were interviewer-administered to sample respondents who were more literate in the Igbo language than the English language. The final response rate after data collection and cleaning of eligible responses was 99.7%. All respondents provided voluntary consent before the study briefing and data collection commenced. The data was cleaned, sorted, and immediately entered into the SPSS spreadsheet for analysis. No missing data was found prior to analysis, as care was taken to enter data properly at the time of data collection.

Variables and Measures

The independent variables were the knowledge, attitude and preventive measures measured as described below:

Knowledge on Cholera

The level of knowledge of mothers about cholera disease was investigated using a 3-option scale with 23 items and the response options "True, False, and I Do Not Know." The correct response was coded 2, and the incorrect response was coded 1. However, lack of knowledge of the statements was coded 0. Thus, under this measure, the maximum score for each respondent was 46, while the minimum was 0. Thus, 31–46 (positive knowledge), 15.5–30.5 (fair knowledge), and 0–15 (poor knowledge)

Attitudinal Disposition

Attitudinal disposition of mothers towards cholera was investigated using a 4-point Likert scale with 17 items and the response options "Strongly Agree, Agree, Disagree, or Strongly Disagree coded 4, 3, 2, 1, respectively. In this measure, the maximum score for each respondent was 68, while the minimum was 1. Thus, 46–68 (positive attitude), 23.5–45.5 (fair attitude), and 1–23 (poor attitude).

Preventive measures

The preventive measures variable put in place towards cholera disease by mothers in the study area was investigated using a 5-point Likert scale questionnaire with 7 items and the response options "Always, Most Times, Commonly, Rarely, and Never" coded as 4, 3, 2, 1, and 0, respectively. The maximum score for each respondent in this section was 28, while the minimum was 0. Thus, 19–28 (satisfactory), 9.5–18.5 (fair), and 0–9 (unsatisfactory).

Data Analysis

Following data collection, sorting, and cleaning, the data were entered into and analyzed using IBM SPSS version 25 into descriptive and inferential statistics. For

each research question, descriptive statistics such as mean, frequency count, and percentages were used to describe responses, while the hypotheses were tested using the person-product moment correlation test statistic.

RESULTS

Three hundred and eighty women responded and provided consent. Their responses have been analysed below.

Sociodemographic characteristics of the respondents

Respondents were mostly within the age bracket of 25 to 31 years (30%). Christianity was the most represented religion, while the most represented ethnic group being Igbo (93.2%). However, 13 (3.4%) were of Ibibio-Akwa Ibom State origin. Most of them, 244 (64.2%) were married, and more than half (64.5%) were employed (Table 1).

Table 1. Socio-demographic characteristics of respondents

S/n	Variables	Frequency(n)	Percentage%
1	**Age**		
	18 - 24 years	59	15.5
	25 - 31 years	114	30
	32 - 38 years	71	18.7
	39 - 45 years	94	24.7
	46 – 49 years	42	11.1
2	**Ethnicity**		
	Igbo	354	93.2
	Hausa	8	2.1
	Yoruba	5	1.3
	Others(Ibibio)	13	3.4
3	**Religion**		
	Christianity	378	99.5
	Islam	2	0.5
	Traditional	0	0
	Other	0	0
4	**Marital Status**		
	Single Mother	82	21.6
	Married	244	64.2
	Divorced	33	8.7
	Widow	21	5.5

Mothers' Knowledge of Cholera

Results showed that 85.8% of respondents thought that cholera spreads through contaminated water. Another 326 (85.8%) thought vomiting was a symptom of cholera. When asked if cholera is spread by poor hygiene, 310 (81.6%) thought it was, and also up to 82.1% thought diarrhea is a symptom of cholera (312 (82.1%), and poor sanitation leads to the spread of cholera (307 (80.8%). However, the statement that cholera is a punishment from God received the least affirmation, as shown in Table 2.

Table 2. Descriptive statistics on mothers' knowledge of Cholera

S/n	Statements	True	False	I Do Not Know
1	Cholera spreads from one person to another.	146 (38.4%)	91(23.9%)	143 (37.6%)
2	Cholera spreads through drinking contaminated water.	326 (85.8%)	28 (7.4%)	26 (6.8%)
3	Cholera spreads through flies and mosquitoes' bites.	148 (38.9%)	125 (32.9%)	107 (28.2%)
4	Cholera spreads by having poor hygiene.	310 (81.6%)	36 (9.5%)	34 (8.9%)
5	Poor sanitation leads to the spread of cholera.	307 (80.8%)	41 (10.8%)	32 (8.4%)
6	Diarrhea is a symptom manifestation of cholera.	312 (82.1%)	23 (6.1%)	45 (11.8%)
7	Vomiting is a symptom manifestation of cholera.	326 (85.8%)	33 (8.7%)	21 (5.5%)
8	Cholera causes death through dehydration.	267 (70.3%)	58 (15.3%)	55 (14.5%)
9	Unsafe water sources are a cause of cholera.	329 (86.6%)	27 (7.1%)	24 (6.3%)
10	Antibiotics are an effective treatment for cholera.	195 (51.3%)	67 (17.6%)	118 (31.1%)
11	Oral rehydration solution (ORS) is used to treat cholera.	222 (58.4%)	58 (15.3%)	100 (26.3%)
12	Cholera is common in Nigeria.	269 (70.8%)	46 (12.1%)	65 (17.1%)
13	Cholera can spread through the air.	106 (27.9%)	141 (37.1%)	133 (35.0%)
14	Cholera is a poison released by the wealthy to the poor.	48 (12.6%)	251 (66.1%)	81 (21.3%)
15	Cholera is spread through bacteria.	180 (47.4%)	107 (28.2%)	93 (24.5%)
16	Cholera affects only children.	60 (15.8%)	250 (65.8%)	70 (18.4%)
17	Cholera is spread through viruses.	95 (25.0%)	138 (36.3%)	147 (38.7%)
18	Cholera is a punishment from God.	34 (8.9%)	270 (71.1%)	76 (20.0%)
19	Cholera has been completely eliminated.	63 (16.6%)	222 (58.4%)	95 (25.0%)
20	Cholera affects all age groups.	274 (72.1%)	63 (16.6%)	43 (11.3%)
21	Cholera affects only older persons or adults.	66 (17.4%)	245 (64.5%)	69 (18.2%)
22	Cholera can be contracted from persons in a single household.	166 (43.7%)	153 (50.3%)	61 (16.1%)
23	Consumption of fishery products increases risk of cholera.	76 (20.0%)	166 (43.7%)	138 (36.3%)

Attitudinal Disposition towards Cholera

Results showed that 60.5% of respondents affirmed that hands should be washed before taking any food. In the same perspective, 59.5% of respondents agreed that poor washing habits at home will promote the spread of cholera, just as another 58.9% thought that poor hand washing habits in public places will also promote the spread of cholera. Up to 3.5% strongly believe vaccination can prevent cholera (Table 3).

Table 3. Descriptive statistics of mothers' attitudinal disposition towards cholera

S/n	Statements	Agree	Strongly agree	Disagree	Strongly disagree
1	Drinking water from the community river can make a person to contract cholera disease.	185 (48.7%)	39 (10.3%)	64 (16.8%)	92 (24.2%)
2	Poor hand washing habits in public places will promote the spread of cholera.	224 (58.9%)	89 (23.4%)	39 (10.3%)	28 (7.4%)
3	Poor washing habits at home will promote the spread of cholera.	226 (59.5%)	88 (23.2%)	54 (14.2%)	12 (3.2%)
4	Inappropriate use of latrines will encourage the spread of cholera.	175 (46.1%)	134 (35.3%)	55 (14.5%)	16 (4.2%)
5	Staying in an unhygienic environment makes a person vulnerable to cholera.	190 (50.0%)	135 (35.5%)	40 (10.5%)	15 (3.9%)
6	Vaccination can keep a person safe from cholera disease.	162 (42.6%)	111 (29.2%)	85 (22.4%)	22 (5.8%)
7	To me, the burying of feces (Poop) of babies in the sand will encourage the spread of cholera.	119 (31.3%)	60 (15.8%)	107 (28.2%)	94 (24.7%)
8	The presence of animal feces will encourage the spread of cholera.	132 (34.7%)	42 (11.1%)	117 (30.8%)	89 (23.4%)
9	Drinking from local wells will encourage the spread of cholera.	151 (39.7%)	67 (17.6%)	76 (20.0%)	86 (22.6%)
10	Funeral cultural practices like drinking water washed from the corpse promote the spread of cholera.	165 (43.4%)	93 (24.5%)	96 (25.3%)	26 (6.8%)
11	Immunizations are effective in the prevention of disease.	205 (53.9%)	116 (30.5%)	50 (13.2%)	9 (2.4%)
12	Cholera vaccination may have side-effects.	129 (33.9%)	82 (21.6%)	138 (36.3%)	31 (8.2%)
13	I believe that our hands should be washed with soap and or ash after defecation.	171 (45.0%)	157 (41.3%)	35 (9.2%)	17 (4.5%)
14	Hands should be washed before taking any food.	230 (60.5%)	136 (35.8%)	10 (2.6%)	4 (1.1%)
15	Cholera is a very serious disease for children.	171 (45.0%)	166 (43.7%)	37 (9.7%)	6 (1.6%)
16	Cholera is a very serious disease for adults.	179 (47.1%)	127 (33.4%)	60 (15.8%)	14 (3.7%)
17	Good sanitation practices are effective against cholera.	155 (40.8%)	190 (50.0%)	23 (6.1%)	12 (3.2%)

Preventive Measures towards cholera

Many (73.4%) respondents always thoroughly cleaned their house environment regularly as a preventive measure against cholera. More so, 70.8% always ensured that garbage generated was collected in bags and thrown away in approved places to prevent the outbreak of cholera. Furthermore, 65.5% reported that they always stored water in a clean and tight container. However, the use of traditional medicine in 27.6% of households by mothers to keep cholera away was never practiced (Table 4).

Table 4. Descriptive statistics of preventive measures put in place towards Cholera disease by mothers

S/n	Statements	Always	Most times	Commonly	Rarely	Never
1	Traditional medicine is administered to members of my household to keep cholera away.	107(28.2%)	71(18.7%)	32 (8.4%)	65(17.1%)	105(27.6%)
2	Washing hands with soap and clean water before doing anything is a regular practice in my house.	238(62.6%)	84(22.1%)	31(8.2%)	13(3.2%)	143(3.7%)
3	We thoroughly clean our house environment regularly in my family.	279(73.4%)	54(14.2%)	29(7.6%)	7(1.8%)	11(2.9%)
4	Water is stored in clean and airtight bottle to avoid contamination.	249(65.5%)	76(20.0%)	34(8.9%)	13(3.4%)	8(2.1%)
5	In my house, garbage generated is collected in bags and thrown away in approved places.	269(70.8%)	50(13.2%)	32(8.4%)	20(5.3%)	9(2.4%)
6	I enforce the flushing of the toilets after use by every member of my household.	263(69.2%)	60(15.8%)	39(10.3%)	9(2.4%)	9(2.4%)
7	Buying of food from public vendors is discouraged in my house.	148(38.9%)	116(30.5%)	59(15.5%)	31(8.2%)	26(6.8%)

Respondents level of knowledge, attitude, and preventive measures for cholera

From the results in Table 5, the mean level of knowledge was 29.71±4.88; 95% CI [29.22, 30.20]. Thus, the mothers had fair knowledge of cholera disease. As shown in Table 6, the mean level of attitudinal disposition was 49.95±4.26; 95% CI [49.52, 50.36]. Therefore, the attitudinal disposition was positive. Preventive measures were satisfactory, given a mean of 22.9±4.56; 95% CI [21.63, 22.55]. (Table 7).

Table 5. Analysis of mothers' level of knowledge on cholera

Categories	Points	Frequency (n)	Percentage (%)	Mean	SD
Good	31 – 46	181	47.6	29.71	4.884
Fair	15.5-30.5	195	51.3		
Poor	0 – 15	4	1.1		
Total		380	100		

Table 6. Analysis of mothers' attitudinal disposition towards Cholera

Categories	Points	Frequency (n)	Percentage (%)	Mean	SD
Positive	46 – 68	335	88.2	49.95	4.258
Fair	23.5-45.5	45	11.8		
Negative	1 – 23	0	0		

Total	380	100

Table 7. Analysis of preventive measures put in place towards Cholera disease by mothers

Categories	Points	Frequency (n)	Percentage (%)	Mean	SD
Satisfactory	19 – 28	298	78.4	22.09	4.557
Fair	9.5-18.5	76	20.0		
Unsatisfactory	0 – 9	6	1.6		
Total		380	100		

Test of Hypotheses

Using the Pearson Product Moment Correlation Test statistic, two null hypotheses were tested at 0.05 significant levels in this study. The decision rule applied was that if the p-value computed was less or equal to the cut-off significance level of 0.05 ($p \leq 0.05$), then the null hypothesis would be rejected and the alternate hypothesis accepted. But if it is greater ($p > 0.05$), then the null hypothesis would be accepted and the alternate hypothesis would be rejected.

Results showed that there was a significant correlation between the knowledge of mothers and their attitudinal disposition towards cholera, r ([378]) = [.23], p = [<.001]. (Table 8) and there was a significant, weak positive correlation between the knowledge of mothers and their preventive measures towards cholera, r ([378]) = [.13], p = [.012]. (Table 9).

Table 8. Correlation between knowledge and attitudinal disposition of mothers

Variables	n	r	df	p-value
Knowledge vs Attitudinal Disposition of Mothers	380	.23	378	.000

** Correlation is significant at the 0.01 level (2-tailed)

Table 9. Results of correlation between knowledge and preventive measures of mothers towards cholera.

Variables	n	r	df	p-value
Knowledge vs Preventive measures Mothers	380	.13	378	.012

* Correlation is significant at the 0.05 level (2-tailed)

DISCUSSION

This study revealed that respondents had fair knowledge, a positive attitude towards cholera prevention, and satisfactory preventive measures. Furthermore, results showed a significant correlation between knowledge and attitude, as well as between attitude and preventive measures.

This study was not without some limitations. The study was interviewer-administered; however, there was the possibility of social desirability bias, which might have caused replies to be overestimated as being more positive and less heterogeneous, giving the impression of agreement that is misleading. Women within the reproductive age range and those with children were sampled; thus, findings can only be generalized to other women alike and not the general population. Only one LGA was surveyed, which could influence the generalizability of the findings to other LGAs. Since the study was a cross-sectional study, the significant correlations found between knowledge and attitude and knowledge and preventive measures could not infer any causality.

Regarding respondents' level of knowledge on cholera, this study revealed a fair level of knowledge. In addition,

the majority could identify contaminated water as a cause. Studies [15,2 2] in other settings found a positive association between knowledge and the female gender. This could likely explain the high level of knowledge exhibited in this study. Although the association could not be explicitly explained, it was theorized by[2] that women are more likely to seek out more information about the illness because they are more concerned about their own and their families' health, which could provide insight into the aforementioned findings. Other studies[16,17] found that the majority of the respondents had poor knowledge of the causes of cholera disease; however, respondents also thought that the ingestion of contaminated water or food remains the principal mode of transmission of cholera, which is similar to the findings in this study. This suggests that the transmission route of cholera is common knowledge, unlike other aspects. Given that this study was focused only on women, unlike the others where the populations were a mixed group, this could be responsible for the difference in the knowledge revealed. However, another study[20] had earlier reported that the majority of the respondents, who were mostly women, had good knowledge of different causes of diseases, further confirming the findings.

Mothers had a positive attitudinal disposition towards cholera in this present study, just as in the study by[17], where attitudinal disposition was found to be positive in the majority of respondents. However, in another study[15] the results showed differently. The attitude was below average. The study by[17] just like the present study, was conducted in a high-cholera area, which may be responsible for the similarity in findings.

Furthermore, there was a significant correlation between knowledge and the attitudinal disposition of mothers towards cholera. This finding aligned with the study of[21] which revealed that the knowledge of the public toward the symptoms of a disease correlates with their attitudes toward the diseases. In their study, the researchers found that poor knowledge due to reluctance to seek information about the outbreak and negative attitudes despite obtaining information from official sources and social media were responsible for the spread of the disease.

Attitude was found to be correlated with preventive measures. A previous study by[14] found that the attitude of the general population toward the symptoms of a disease plays a vital role in the management of that disease. Attitude, which is a settled way of thinking that helps to organize and structure our experiences and ultimately influence all our actions, is correlated with our level of knowledge on the subject matter. Thus, deliberately planned health education activities that help foster positive attitudes may promote a higher-than-satisfactory practice.

Preventive measures were satisfactory. This finding contradicts the study by[20] which found that the respondents had gaps in preventive practices but had good knowledge of cholera. It equally contradicts the study by[22] which found that the respondents practice was very poor and also resulted in cholera in their community. From the observed variation in the outcome of this present study when compared with some others, the researcher is of the view that the regular health sensitization seminar organized by WHO and other health agencies on hygiene practices within communities since the initial outbreak of the disease in 2021 could have contributed to the reported satisfactory preventive measures.

The results showed a significant correlation between knowledge and attitude, as well as the attitude and preventive measures of mothers towards cholera in the study area, although they were weak. Other studies reported similar relationships[17,23-24] These and the present study are indicative of some relationship, but not necessarily translational given the cross-sectional nature of the studies. In the future, longitudinal studies or experimental studies may help provide better inferences.

However, more health sensitization needs to be carried out to increase community dwellers' knowledge of cholera in particular and epidemic disease outbreaks in general.

CONCLUSION

The findings of this study suggest that mothers in Ugwunagbo LGA of Abia State appeared to have fair knowledge of cholera disease, positive attitudinal

dispositions, and satisfactory preventive measures. Health education remains an essential tool in the fight against endemics. Thus, continued comprehensive education for mothers to heighten knowledge, maintain a positive attitude, and also heighten preventive practices would be beneficial in this community. Sensitization activities should keep reiterating simple preventive measures such as practicing good sanitation, using water from safe water supply sources, boiling water for drinking, constructing proper sewage and drainage systems, early treatment of infected persons and facilities, and proper disposal of infected materials such as waste products, clothing, and bedding for the prevention of cholera.

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CONFLICT OF INTEREST

The authors declare that they have no conflict of interest

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