ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue XI November 2024

Knowledge, Attitude and Practices Survey on Cholera Among the Residents of Kadoma City, Zimbabwe 2024

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DOI: https://doi.org/10.51244/IJRSI.2024.11110074

Received: 08 November 2024; Accepted: 14 November 2024; Published: 19 December 2024

ABSTRACT

Background

Kadoma City has experienced repeated cholera outbreaks. The latest occurred in 2024 and affected all 17 administrative wards. In March 2024, a Knowledge, Attitude, and Practices (KAP) survey was conducted to inform planning and implementation of cholera preventive interventions.

Methods

A cross-sectional study was conducted employing a mixed-methods approach, utilizing both quantitative and qualitative data collection techniques. A sample size of 609 was calculated, and stratified sampling method was used to select households from which one member aged 18 years or above was interviewed. Data were collected using a pretested questionnaire and analyzed using Epi Info 7.2.5™. Thematic analysis was used for qualitative data analysis.

Results

We recruited 611 respondents with a median age of 31 years and majority, 399 (65.3%) were females. Three hundred and ninety-three (64.3%) respondents had completed secondary education, and 273 (44.7%) were self-employed. Drinking contaminated water was reported by 497 (81.3%) as a mode of cholera transmission while 525 (86.9%) reported handwashing with soap after visiting the toilet as a critical preventive measure. Overall, 356 (58.3%) had high knowledge of cholera. Attitudes were positive, 399 (65.3%) respondents agreed that cholera could be fatal if untreated, while 367 (60.1%) agreed that oral cholera vaccine (OCV) was an effective protective measure. Three hundred and thirty-seven (55.2%) reported disposing waste in refuse pits, 288 (47.1%) used plastic bins for collection by the council, and 127 (21%) reported disposing waste in neighborhood heaps. When asked about the preferred methods of receiving health related information, 413 (67.7%) preferred door-to-door campaigns and 345 (56.5%) preferred short message services (SMS).

Conclusion

Respondents demonstrated good cholera knowledge and positive attitudes, though gaps in sanitation were noted. We recommended improving waste collection in the city and incorporating health promotion messages in council utility bills and SMS sent to residents.

Key words: Cholera, Knowledge, Attitudes, Practice, Kadoma

Word count: 296

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue XI November 2024

INTRODUCTION

Cholera is an acute diarrheal disease caused by the bacterium Vibrio cholerae. It is characterized primarily by profuse watery diarrhea[1,2]. The bacterium comprises over 200 serogroups, with only serogroups O1 and O139, which thrives in crowded conditions with poor sanitation, being associated with outbreaks worldwide[2]. The incubation period ranges from 2 hours to 5 days[1,3]. Although majority of individuals infected with V. cholerae may not show signs, they can shed the bacteria in their faeces for 1-10 days, potentially infecting others[3,4]. The majority with clinical presentation experience mild to moderate symptoms, with a few experiencing acute watery diarrhea leading to severe dehydration and possible death, if untreated[1,4]. Cholera is treatable, with prompt oral rehydration solution (ORS) administration being successful in most cases. Severely dehydrated patients may receive appropriate antibiotics to reduce diarrhea duration and V. cholerae excretion however, mass antibiotic administration is discouraged to prevent antimicrobial resistance[2,3].

Cholera remains a global public health threat and an indicator of social inequity affecting an estimated 1.4 to 4 million people globally[1]. About 2.8 million cases and 91,000 deaths due to cholera occur in Africa annually[2]. To effectively control cholera outbreaks it requires a multifaceted approach encompassing public health surveillance, improving water sanitation and hygiene (WASH) services, social mobilization, treatment, and oral cholera vaccine (OCV) use[5,6]. In Zimbabwe, five distinct cholera outbreaks were recorded from 1999 to 2023. The 2008–2009 epidemic resulted in 98,585 reported cases and 4,287 deaths, making it the largest and deadliest in Zimbabwe's history[7]. Kadoma City has been affected by recurrent outbreaks of cholera and other diarrheal diseases mostly occurring in high-density suburbs where there is defective sanitation. In January 2024 Kadoma recorded an outbreak of cholera which rapidly spread throughout the city affecting all 17 administrative wards.

Individual and community knowledge, behaviors, attitudes, and practices related to sanitation have a direct impact on the prevention, control, and management of cholera[2]. Understanding people's knowledge, attitudes, and practices regarding cholera outbreaks is important for planning effective preventive health education programs. This study therefore aimed to assess the knowledge, attitudes, and practices regarding cholera transmission and prevention among the residents of Kadoma City to inform risk communication and community engagement activities.

MATERIAL AND METHODS

Study Design

We conducted a cross-sectional study between 28 March and 5 April 2024, during a cholera outbreak in Kadoma City.

Study Setting

The study setting was Kadoma City which is situated 140 km south of Harare in Mashonaland West Province. According to the 2022 central statistics office populations and housing census report for Zimbabwe, Kadoma City had a total population of approximately 117 380 people, with more than 50% residing in Rimuka[8]. The city has 17 administrative wards and 40 000 households, with an average household size of 4. The location of Kadoma City and the administrative wards are presented in Plate 1.

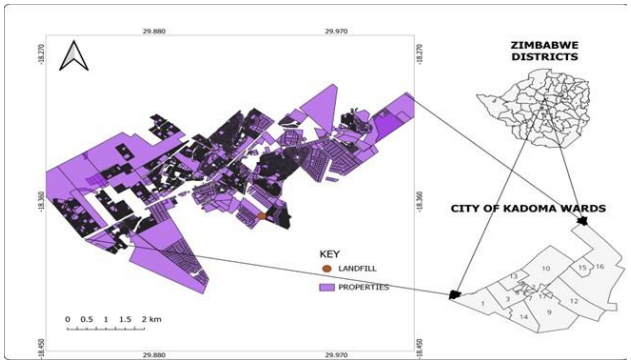

Plate 1: Map of Zimbabwe Showing Kadoma City

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Study Population

Our study population was any resident of Kadoma City aged 18 years and above.

Sample Size

We calculated a minimum sample size of 609 respondents using Dobson's formula according to a study by Juru et al. (2018)[9].

Sampling

To ensure representation across all the 17 administrative wards in Kadoma, we conducted a proportionate stratified sampling in selecting our respondents. The 17 administrative wards were regarded as strata. Within each stratum, systematic sampling was used to select households for inclusion in the study. At each selected household, one member was conveniently selected for interviewing. Purposive sampling was used to select participants for focus group discussions.

Data Collection

A pretested electronic questionnaire was created using Kobo Toolbox™ and transferred to the Open Data Kit (ODK)™ application for collection of information on socio-demographic factors, knowledge, attitude, and practices on cholera from residents. We used a set of twelve (12) questions to assess knowledge on the causes, transmission, and prevention of cholera. Fifteen questions were used to assess hygiene and sanitation practices. Observations were conducted to collect data on the availability of lavatories, presence of handwashing facilities, and solid waste disposal methods. Two focus group discussions (FGDs) were conducted in the local dialect (Shona) using an interview guide. Data for the FGDs were captured through notetaking while maintaining the anonymity of the respondents.

Measurement of knowledge

A knowledge scale was used to measure respondents' knowledge. Each answer to knowledge questions was scored as correct or wrong, with a point awarded if correct. The scores were then summed, and a frequency distribution was obtained, indicating the range from lowest to highest point score. A mean total score was then calculated. A high knowledge score was defined as a total score above or equal to the mean score and a low knowledge score as a score below the mean score.

Measurement of Attitude

Attitude was assessed using a 5-point Bipolar Likert scale. Respondents indicated whether they strongly disagree (-2), disagree (-1), neutral (0), agree (1) or strongly agree (2) with the questions posed. Mean scores were then calculated by a summation of these assigned values for all responses and dividing the total mean scores by the number of responses. This yielded an average mean score, reflecting the overall attitude towards cholera. The mean scores were then analyzed to compare attitudes across demographic variables.

Data Analysis

Data collected were exported to Epi info 7.2.5™ for analysis. Categorical data was summarized using frequencies and percentages. For continuous data, the mean and standard deviation were used when data was symmetrically distributed. Chi-squared statistics for contingency tables were used to assess the association between knowledge of cholera and demographic variables. Statistical significance was assessed using p-values. The results were considered significant if $p \leq 0.05$.

Permission and Ethical Consideration

Kadoma City Council institutional review board (IRB) granted permission to conduct the study, and all respondents provided written informed, signed consent. Respondents were also given a detailed explanation of

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the survey's objectives for informed decision-making.

RESULTS

Descriptive Findings

A total of 611 respondents in the 17 administrative wards of Kadoma City were interviewed. The median age of respondents was 31 years (Q1 = 24; Q3 =40). Among the 611 respondents, 399 (65.3%) were females and 212 (34.7%) were males ($p<0.05$). The demographic characteristics of respondents are presented in Table 1.

Table 1: Demographic Characteristics for Respondents in Kadoma City,2024

Characteristic	Category	Frequency (%)
Sex	Male	212 (34.7)
	Female	399 (65.3)
Age Group	18-29	259 (42.4)
	30-39	187 (30.6)
	40-49	101 (16.5)
	50-59	36 (5.9)
	60+	28 (4.6)
Level of Education	None	2 (0.3)
	Primary Incomplete	8 (1.3)
	Primary Complete	27 (4.4)
	Secondary Up to Form 4	393 (64.3)
	Form 5 to Form 6	85 (14.0)
	Tertiary	96 (15.7)
Occupation	Unemployed	226 (37.0)
	Self Employed	273 (44.7)
	Employed/Salaried	112 (18.3)
Religion	None	33 (5.4)
	Christian-Apostolic	192 (31.4)
	Christian-Pentecostal	256 (41.7)
	Christian-Catholic	88 (14.4)
	Islam	6 (1.0)
	Other	36 (5.9)

Seventh Day Adventist, Methodist, Jehovah's Witness

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Two focus group discussions (FGDs) were conducted: one at Rimuka maternity clinic with 15 participants (mothers/caregivers of children under the age of five years), and the other at Kadoma City Council town house with 4 participants (representatives of people living with disabilities).

Knowledge Assessment.

Among the respondents, 497 (81.3%) knew that cholera is transmitted through drinking contaminated water, 425 (69.6%) indicated transmission through eating contaminated food, and 453 (74.1%) mentioned poor hygiene as a factor promoting transmission. Symptoms of cholera reported by respondents were watery diarrhea 597 (97.7%), vomiting 528 (86.4%), and dehydration 80 (13.1%). Five hundred and twenty-five (86.9%) and 419 (68.6%) respectively, identified handwashing with soap after toilet use and washing fruits and vegetables with clean water as important prevention methods against cholera. The overall proportion of respondents assigned a high knowledge score of cholera was 356 (58.2%). The knowledge of cholera symptoms, transmission, and prevention methods among the respondents in Kadoma is presented in Table 2.

Table 2: Respondents Knowledge on Symptoms, Transmission and Prevention Methods for Cholera in Kadoma, 2024

Symptoms of Cholera	Frequency, n (%)
Watery diarrhea	597 (97.7)
Vomiting	528 (86.4)
Dehydration	80 (13.1)
Fever	120 (19.6)
Bloody Diarrhea	9 (1.5)
Cholera transmission	
Drinking Contaminated water	497 (81.3)
Eating Contaminated food	425 (69.6)
Poor Hygiene	453 (74.1)
Unwashed fruits and vegetables	296 (48.5)
Flies	237 (38.8)
Open defecation	198 (32.4)
Not washing hands	257 (42.1)
Sewage Overflows	184 (30.1)
Refuse near home	74 (12.1)
Don’t know	24 (3.9)
Cholera Prevention	
Treat household water	350 (57.8)

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Washing fruit and vegetables	419 (68.6)
Proper disposal of diapers	44 (7.2)
Handwashing before food preparation	273 (44.7)
Breastfeeding hygiene	73 (11.9)
Cooking food thoroughly	381 (62.4)
Covering food	200 (32.7)
Hand washing after using the toilet	525 (86.9)
Eating Food while hot	180 (29.8)
Boiling water	333 (54.5)

During the focus group discussions, poor hygiene, sewage flows, refuse heaps near residential areas, unavailability of municipal water, and drinking untreated water from wells were identified as predisposing factors for contracting cholera. The signs and symptoms for cholera mentioned were watery diarrhea, vomiting, stomach cramps, and fever. Methods of preventing cholera mentioned by participants during the FGDs included regular collection of solid waste in residential areas, constant supply of clean water by the city council, regular washing of hands, and eating hot thoroughly cooked food.

One participant mentioned: *"We need to keep our environment clean to protect ourselves from cholera. We can do that if we have a constant supply of clean water from the city council and a regular collection of waste. Also, the food we eat must be cooked thoroughly and eaten whilst hot."*

Assessment of Attitude

Among the 611 respondents,546 (89.3%) agreed with the statement that cholera can be spread from person to person, and 602 (98.5%) agreed that cholera can be fatal if not treated early. Furthermore, 486 (79.5%) agreed or strongly agreed with the statement, "It is safe to drink water from a well than municipal tap water." Asked of cholera vaccination 473 (77.4%) agreed that oral cholera vaccination can prevent the disease. Responses to questions about attitude towards cholera in Kadoma are presented in Table 3.

Table 3: Responses from Residents to Attitude Questions in Kadoma, 2024

Question	Strongly Disagree. n (%)	Disagree n (%)	Neutral n (%)	Agree n (%)	Strongly Agree n (%)
Cholera can be spread from one person to the other?	1(0.2)	5(0.8)	59(9.7)	371(60.7)	175(28.6)
Cholera can lead to death if not treated early?	0	0	9(1.5)	399(65.3)	203(33.2)
Cholera can be prevented	1(0.2)	0	7(1.1)	441(72.2)	162(26.5)
Attending large gatherings in areas with cholera outbreaks can put you at risk?	0	2(0.3)	66(10.8)	341(55.8)	202(33.0)
Eating cooked food sold by street vendors can put you at risk?	2(0.3)	3(0.5)	86(14.1)	382(62.5)	138(22.6)

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It is safe to drink water from a well than municipal tap water	5(0.8)	28(4.6)	92(15.0)	365(59.7)	121(19.8)
Traveling to an area with an outbreak of cholera can put you at risk?	3(0.5)	1(0.3)	55(9.0)	402(65.8)	150(24.5)
Eating from the same plate as a family can promote the spread of cholera?	4(0.7)	20(3.3)	104(17.0)	381(62.3)	102(16.7)
Handshaking promotes/influence the spread of cholera?	1(0.2)	1(0.2)	86(14.1)	400(64.5)	123(20.1)
Poor hand washing habits promote the spread of cholera?	0	2(0.3)	9(1.5)	472(77.3)	129(21.1)
Unhygienic circumstances in my area encourage the spread of cholera?	0	0	23(3.8)	458(75.0)	133(21.8)
Using the bush/Open spaces for defecation encourages the spread of cholera?	1(0.2)	0	13(2.1)	460(75.3)	137(22.4)
Improper use of toilets will encourage the spread of cholera?	0	1(0.2)	11(1.8)	479(78.4)	120(19.6)
Getting a cholera oral vaccine can prevent the disease?	1(0.2)	24(3.9)	113(18.5)	367(60.1)	106(17.3)
I am satisfied with the Kadoma City Council Response to Cholera outbreak?	25(4.1)	83(13.6)	60(9.8)	366(59.9)	77(12.6)

During focus group discussions, participants agreed that cholera can be fatal if not treated early. One participant during discussions with mothers of children under five at Rimuka maternity clinic said:

"If you take ORS and quickly visit the clinic, there are high chances of surviving. Most of the people dying from cholera in the community are not seeking medical care quickly. We usually take antibiotics first at home assuming the diarrhea would stop."

Furthermore, most participants mentioned that they were satisfied with the response being offered by the Kadoma City council in terms of providing treatment services. Participants mentioned that:

"We have seen the efforts made by the council in terms of providing treatment services. They have established a cholera treatment center and various points for rehydrating in the community."

"Establishment of oral rehydration points in residential areas have really assisted the community with ease of access to treatment services. However, a lot more still needs to be done in terms of regular water provision and fixing of burst sewer pipes to complement the efforts on treatment services".

Comparison of Attitude Among Different Sociodemographic Variables

The overall mean score for attitude toward cholera transmission and prevention among the respondents was 1.0 (SD = +/-0.35). The proportion of respondents assigned a positive attitude was 610 (99.8%.). Females had a mean attitude score of 1.0 (SD= +/-0.36), and males 0.9(SD=+/-0.34) (p =0.02). The mean attitude scores compared across various demographic variables are presented in Table 3.

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Table 3: Respondents Attitudes Towards Cholera Compared Across Different Demographic Variables in Kadoma, 2024

Socio-Demographic Factors	Mean Score	Standard Deviation	P value
Age			
18-29	0.9	0.34	
30-39	1	0.36	
40-49	1.2	0.37	
50-59	1.1	0.34	
>60	1.1	0.37	0.06
Gender			
Male	0.9	0.34	
Female	1	0.36	0.02
Level of Education			
None	0.9	0	
Primary Incomplete	0.8	0.31	
Primary Complete	1.1	0.38	
Secondary Up to Form 4	1	0.35	
Secondary Up to Form 6	1	0.34	
Tertiary	0.9	0.36	0.05
Religion			
None	0.9	0.32	
Christian-Apostolic	1	0.31	
Christian-Pentecostal	1	0.4	
Christian-Catholic	0.9	0.3	
Islam	0.9	0.08	
Other	1.1	0.35	0.47

Preferred Methods of Communication

Of the 611 residents who participated in the survey, 355 (58.1%) reported to have received information on cholera previously. The most common sources of information about cholera were mentioned as health facilities 210 (34.4%), door-to-door campaigns 154 (25.2%) and community health workers 93 (15.2%). Sources of information about cholera among respondents in Kadoma are presented in Fig 1.

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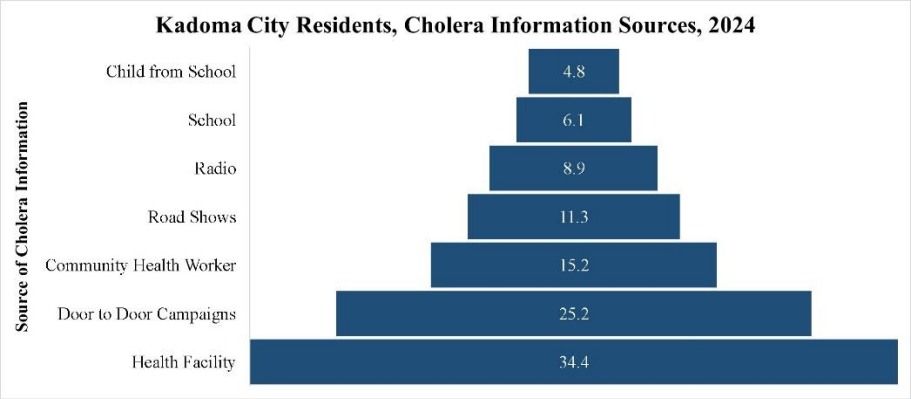

Fig 1: Sources of Cholera Information Among Respondents in Kadoma City, 2024

When asked about their preferred channels for receiving cholera information, 413 (67.6%) respondents mentioned door-to-door campaigns, 345 (56.5%) preferred Short Message Service (SMS), and 170 (27.8%) preferred community dialogues. The preferred channels of information dissemination among residents in Kadoma are presented in Fig 2.

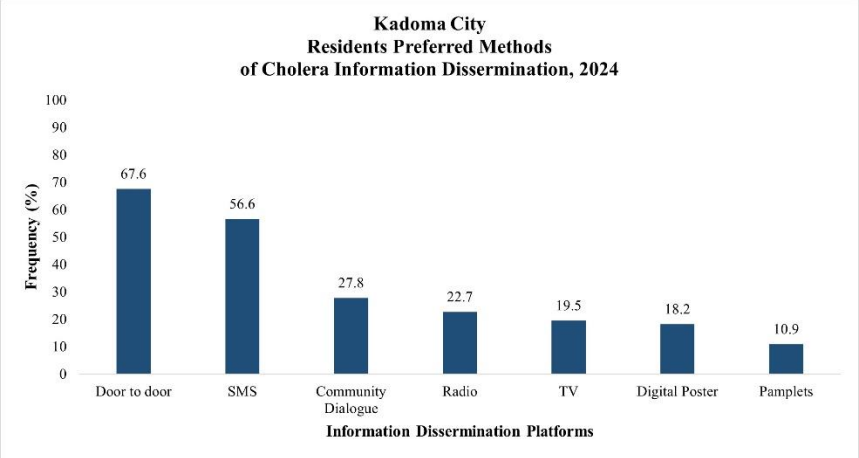

Fig 2: Respondents Preferred Methods of Receiving Information about Cholera in Kadoma, 2024

Practices

Sources of Water Used by Households in Kadoma

Communal boreholes were reported as the most common source of water by 325 (53.2%) respondents, 279 (45.7%) used municipal tap water and 267 (43.7%) reported using protected wells. The different sources of water used by residents in Kadoma are presented in Fig 3.

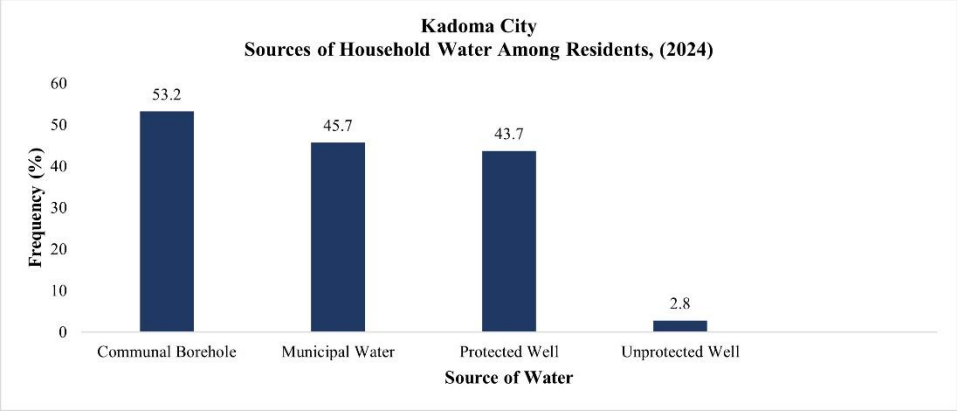

Fig 3: Sources of Water for Household Use Among the Respondents of Kadoma,2024

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Hand Washing Practices

Respondents were asked about their hand-washing practices. Of the 611 interviewed, 554 (91%) reported washing hands after visiting the toilet, 545(89.2%) washed hands when visibly dirty, and 444 (73%) reported washing hands before food preparation.

Sanitary Facilities

Among the respondents, 443 (73%) were using flush toilets that were out of order and so relied on manual flushing using water in buckets while 135 (22.1%) had functional flush toilets. Regarding waste disposal methods, 288 (47.1%) residents had plastic bins ready for collection by the city council, 337 (55.2%) used pits and 127 (21%) reported disposing solid waste on heaps in the neighborhood. The sanitary facilities, handwashing practices and waste disposal methods in Kadoma are shown in Table 5.

Table 5: The Sanitary Facilities and Handwashing Practices of Respondents in Kadoma, 2024.

Practices	Frequency n (%)
Types of toilets	
Clean Blair toilet	29 (5.0%)
Communal toilet	1 (0.2%)
Flush toilet (not working bucket system)	443 (73.0%)
Flush toilet (Working)	135 (22.1%)
Unclean Blair toilet	3 (0.5%)
Handwashing Practices	
After visiting the toilet before eating	554 (91.0%)
After eating	278 (46.0%)
Before food preparation	444 (73.0%)
Do not wash hands	6 (1.0%)
When hands visibly dirty before eating	545 (89.2%)
After changing baby’s diaper	157 (26.0%)
Waste disposal Methods	
Refuse Pit	337 (55.2%)
Plastic bins for collection by council	288 (47.1%)
Heaps of waste in neighborhood	127 (21.0%)

Health Seeking Behavior

Residents were asked what they would do if they or their family members had diarrhea, 435 (71.2%) reported that they would prepare ORS, 549 (89.8%) reported they would visit the nearest clinic and 54 (8.8%) reported they would take antibiotics. The health seeking practices among respondents in Kadoma are shown in Table 6.

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Table 6: Health Seeking Practices Among Respondents in Kadoma, 2024

Health seeking practice	Frequency (%)
Prepare ORS	435 (71.2)
Visit the nearest clinic.	549 (89.8)
Give Antibiotics	54 (8.8)
Use Herbs	4 (0.7)

During focus group discussions, most participants reported using salt and sugar solution (SSS) and seeking treatment at the nearest health facility when they had diarrhea. However, only a few could accurately recall the correct steps for preparing SSS.

A participant explained: *"When someone has diarrhea and no oral rehydration solution (ORS) sachets are available, we prepare a salt and sugar solution by mixing salt and sugar in a liter of boiled water. Mothers, especially those with babies, often know how to prepare the solution because they are taught this at the clinic."*

Factors Associated with High Knowledge Scores on Cholera

The socio-demographic factors associated with high knowledge score on cholera are presented in Table 7.

Table 7: Socio-Demographics Factors Associated with High Knowledge score on Cholera among Residents of Kadoma City, 2024

Variable	n	High Knowledge Score	Low Knowledge Score	cOR (95% CI)	aOR (95% CI)
Age Group					
<30	259	143	116	0.8 (0.58–1.11)	0.7 (0.5–1.0)
≥30	352	213	139 (ref)		
Education					
Up to Form 4	430	229	201 (ref)	2.1 (1.4–3.0)	2.2 (1.5–3.1) *
Above Form 4	181	127	54		
Gender					
Males	212	126	86	1.1 (0.8–1.5)	1.0 (0.7–1.4)
Females	399	230	169 (ref)		

DISCUSSION

In this study we assessed knowledge, attitudes, and practices related to cholera among residents of Kadoma City, a mining town that has faced periodic outbreaks of diarrhea including cholera. A total of 611 residents were recruited into the study and most demonstrated a high level of knowledge about cholera symptoms, modes of transmission, and preventive practices. Attitude towards cholera prevention was positive, and good practices, such as

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handwashing and use of oral rehydration solutions when ill, were commonly reported. However, the study identified gaps, particularly in waste disposal which may increase the risk of cholera transmission in the community.

In our study, over 90% of respondents demonstrated high knowledge about cholera. This was evident in their good practices, such as handwashing after using the toilet and use of ORS at home if someone had diarrhea. This level of knowledge suggests a well-informed community, likely due to health education from the city council's risk communication and community engagement activities. Similar findings were highlighted in studies conducted in Kenya and Tanzania, where health education initiatives led to improved knowledge and hygiene practices related to cholera prevention among residents[2,10]. This consistency across settings highlights the importance of health education in enhancing community knowledge and responses to cholera. Furthermore, while handwashing is a key measure in preventing cholera transmission, the widespread use of ORS at home suggests that the community has adopted essential, immediate care practices to manage dehydration, a common complication of cholera[11]. Such community-level awareness and adherence to preventive measures suggest that public health messaging is effectively equipping individuals with the knowledge and skills necessary to reduce cholera transmission and mitigate its health impact.

Additionally, higher knowledge scores were associated with a higher level of education. This finding aligned with studies in Saudi Arabia, Ghana and Tanzania, which demonstrated a positive correlation between level of education and cholera knowledge[10,12,13]. This is possibly because individuals with higher levels of education are more likely to access and understand health information, enabling them to make informed decisions regarding disease prevention[14].

Most respondents demonstrated a positive attitude towards cholera prevention and management in Kadoma, likely stemming from their high level of knowledge about the disease. The positive attitudes indicate that residents are likely to support and participate in public health interventions. This support is important for the success of implementing public health interventions such as OCV and hygiene promotion activities. However, despite this positive attitude, a concerning majority believed well water was safer to drink than municipal tap water. This perception raises alarm due to the potential risks associated with well water contamination, especially in areas prone to cholera outbreaks[15]. This perception may be attributed to the inconsistent supply of piped water by the city council, which led many to rely on communal boreholes despite being in an urban area where piped water should be primary. Similar findings were reported by Tsitsi et al. (2018) in Harare, Zimbabwe, where unreliable piped water supplies forced residents to depend on communal boreholes[9].

Despite high levels of knowledge and positive attitudes toward cholera among respondents in Kadoma, detrimental practices persist that could harm community health. Approximately one-quarter of respondents reported disposing of solid waste in neighborhood garbage heaps, likely due to inconsistent refuse collection by the city council. This practice of illegal waste dumping raises concerns as it may provide breeding sites for flies that transmit infectious diseases such as cholera[16]. Similar practices have been linked to an increased risk of cholera outbreaks in Zimbabwe[17]. Consistent with these findings, Tsitsi et al. (2018) in Zimbabwe noted that inadequate waste disposal systems forced residents to discard waste in heaps of rubbish in the streets, exacerbating health risks of the community[9].

In our study, we further noted that door-to-door campaigns, SMS alerts and community dialogues were the most preferred sources of receiving health related information among the respondents. This preference may be due to the personalized and interactive nature of door-to-door campaigns and community dialogues which allow for direct engagement and immediate clarification of questions addressing specific concerns in real time. The effectiveness of door-to-door campaigns in delivering cholera information aligns with findings from Mozambique where personalized health education through home visits was shown to significantly improve cholera awareness campaigns and encourage behavior change[18]. Such methods can help overcome barriers to information access, especially in low-resource settings where residents may not regularly visit health facilities or have access to other forms of communication.

Conclusion

The respondents in this study demonstrated a high level of knowledge about cholera symptoms, transmission,

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and prevention, which was strongly linked to their education level. While most had a positive attitude toward cholera prevention, some believed well water to be safer than municipal water, highlighting a need for public awareness campaigns to address local myths about water sources in Kadoma. Gaps in cholera prevention practices were observed, such as waste disposal in neighborhood heaps. Health facilities and door-to-door campaigns were the main sources of cholera information, with respondents preferring door-to-door campaigns, SMS, and community dialogues as effective communication channels.

Recommendations

Based on synthesis of the study findings, to Kadoma city council health department, we recommended implementing targeted health education programs to promote safer waste disposal practices among residents. The city council should establish an advocacy and communication plan to engage decision-makers in improving piped water supply and ensuring consistent waste collection in the city. Furthermore, to broaden the reach of information and facilitate timely communication, we also recommended incorporating health promotion messages into council utility bills and SMS notifications. To enhance community engagement, Kadoma City should also expand door-to-door campaigns and community dialogues, as these were identified as the preferred methods for receiving information. During outbreaks, a comprehensive communication strategy that integrates news media, social media, community dialogues, and door to door campaigns is essential for reaching affected individuals and delivering actionable public health guidance. These strategies would also provide platforms for residents to offer feedback and seek clarification on concerns, enabling a more tailored and effective response.

Acknowledgements

We extend our gratitude to the Zimbabwe Red Cross Society for funding the data collection and report writing for this KAP survey. We also sincerely thank the research assistants for their support in data collection and the study respondents for their participation. Additionally, we are grateful to the Kadoma City Health Department for their technical and practical expertise throughout the survey.

Competing Interests

The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' Contribution

CM, CZ and DC were responsible for conceptualization of the study. CM, CZ and DC were responsible for study protocol development, data collection, analysis of results and drafting of the manuscript. CM, CZ, CM, CM, PB, ST, and DC reviewed, edited and approved the final version of the manuscript. All authors agree to be accountable for the content and integrity of the article.

Funding Information

This study was supported by the Zimbabwe Red Cross Society. The funding source had no role in the study design, data collection, analysis, or interpretation of data.

Data Availability

The authors confirm that the data supporting the findings of this study are available from the authors upon reasonable request and with permission from the Kadoma City Council.

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ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue XI November 2024

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ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue XI November 2024

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