IKR Publishers

IKR Journal of Arts, Humanities and Social Sciences (IKRJAHSS)
Journal homepage: https://ikrpublishers.com/ikrjahss/
Volume-2, Issue-6 (November-December) 2026
OPEN ACCESS
ISSN: 3107-4014 (Online)

Community Behavioural Practices and Cholera Vulnerability in Kinondoni Municipality, Tanzania

Alice Kalulu[1*], Prof. Johnson Mavole[2] & Dr Paskas Wagana[3]
[1,2,3]Department of Sociology, Faculty of Humanities and Social Sciences, St. Augustine University of Tanzania, Dar es Salaam, Tanzania

DOI: *10.5281/zenodo.24201557*

ARTICLE INFO

Article history:
Received : 22-10-2026
Accepted : 02-11-2026
Available online : 13-11-2026

Copyright © 2026 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution-NonCommercial **4.0 International License (CC BY-NC 4.0),** which permits non-commercial use, sharing, and reproduction in any medium, provided the original author(s) and source are appropriately credited.

Citation: Kalulu, A., Mavole, J., & Wagana, P. (2026). Community Behavioural Practices and Cholera Vulnerability in Kinondoni Municipality, Tanzania. *IKR Journal of Arts, Humanities and Social Sciences*, *2*(6), 48-55.

ABSTRACT **Original Research Article**

Cholera remains a public health concern in communities where everyday water-handling, food hygiene, sanitation, and personal hygiene practices may increase exposure to contaminated water or food. However, community behaviour should not be examined independently of the social and material conditions within which people make daily decisions. This article explores how community behavioural practices contribute to cholera vulnerability among community members in Kinondoni Municipality, Dar es Salaam, Tanzania. The study adopted a qualitative approach and examined experiences reported by community members and relevant local stakeholders in Kigogo, Tandale, and Msasani wards. Data were generated through semi-structured interviews, key informant interviews, and focus group discussions and analysed thematically. The findings identified five interconnected themes: water storage and handling practices, household water treatment, food hygiene, handwashing practices, and waste disposal and health-seeking behaviour. The findings indicate that unsafe handling of stored water, inconsistent water treatment, difficulties maintaining food hygiene, inconsistent handwashing, and inappropriate waste disposal were perceived as practices that could increase cholera vulnerability. Nevertheless, these practices were influenced by water-supply interruptions, limited resources, inadequate facilities, and weaknesses in waste-management services. The article concludes that effective cholera prevention requires sustained behavioural change supported by reliable water and sanitation services, practical health education, community participation, and responsive municipal institutions.

Keywords: Community Behavioural Practices, Cholera Vulnerability, Water Handling, Food Hygiene, Sanitation, Kinondoni Municipality.

**Corresponding author: Alice Kalulu*
Department of Sociology, Faculty of Humanities and Social Sciences, St. Augustine University of Tanzania, Dar es Salaam, Tanzania

Introduction

Cholera is an acute diarrhoeal disease associated with the consumption of water or food contaminated with toxigenic *Vibrio cholerae*. Its transmission is closely connected to water safety, sanitation, food handling, and personal hygiene. Although the availability of safe water and sanitation infrastructure is important, the way people collect, store, treat, and use water can also influence exposure to contamination. Household practices concerning handwashing, food preparation, sanitation, and waste disposal may either reduce or increase opportunities for disease transmission. Consequently, understanding cholera vulnerability requires attention to the relationship between everyday behavioural practices and the conditions in which communities live (Ali et al., 2015; Jones et al., 2020).

In urban communities, behavioural practices are shaped by household circumstances, access to essential services, available resources, and the reliability of public infrastructure. For example, households experiencing interruptions in water supply may store water for longer periods or obtain it from alternative sources. Although storage can help households maintain access to water, the

safety of stored water depends on the cleanliness of containers, protection from contamination, and the methods used to draw water for consumption. Research conducted in Dar es Salaam has demonstrated that household water handling, uncovered containers, inadequate handwashing, and inconsistent water treatment can create potential pathways for contamination (Badowski et al., 2011).

Food hygiene and handwashing are equally important dimensions of cholera prevention. Safe food preparation requires clean water, appropriate utensils, hygienic handling, and protection against contamination. Similarly, handwashing is most effective when performed appropriately and supported by access to water and soap. However, community members may experience difficulties maintaining recommended practices when facilities are inadequate or supplies are unavailable. Evidence from cholera research in East Africa shows that sanitation limitations and particular hygiene practices can be associated with increased vulnerability during outbreaks (Nauja et al., 2019; Ngingo et al., 2023).

The relationship between behaviour and cholera vulnerability is particularly relevant in Tanzania, where cholera outbreaks have affected both urban and rural communities. Research in Dar es Salaam has identified differences between community members' knowledge of cholera prevention and the consistent implementation of recommended practices. Chae et al. (2022), for example, documented household water-treatment practices and concerns about water contamination during the 2015–2016 cholera epidemic. Their findings demonstrate that knowing about cholera does not necessarily mean that households consistently apply recommended preventive measures.

Similarly, Ngingo et al. (2023) identified behavioural and socioecological factors associated with cholera outbreaks in Ilemela District, Mwanza Region, and Nkasi District, Rukwa Region. The study highlighted concerns relating to water use, sanitation, waste disposal, and other community practices. These findings reinforce the need to understand behaviour within the broader environmental and institutional circumstances affecting communities. They also indicate that behavioural practices may differ according to local livelihoods, service availability, settlement conditions, and access to safe water.

Kinondoni Municipality provides an important context for examining these relationships. The municipality contains communities experiencing different conditions of water access, sanitation, drainage, and environmental management. Residents' everyday practices are influenced by these conditions, especially when water supply is interrupted or environmental conditions disrupt routine activities. Previous research has investigated household water safety and cholera-related risks in Dar es Salaam, but further contextual understanding is needed concerning how community members describe and negotiate behavioural practices in their daily lives.

An exclusively individualistic explanation of cholera vulnerability would overlook the circumstances that influence whether people can maintain recommended practices. A household may understand the importance of treating drinking water but face financial or practical difficulties obtaining treatment products. Similarly, residents may recognise the importance of proper waste disposal while experiencing delays in waste collection or lacking convenient disposal facilities. Behavioural practices should therefore be examined as actions shaped by both individual decisions and the social, economic, infrastructural, and environmental conditions surrounding them.

This article addresses that concern by exploring how community behavioural practices contribute to cholera vulnerability among community members in Kinondoni Municipality, Tanzania. It focuses on water storage and handling, water treatment, food hygiene, handwashing, waste disposal, and health-seeking behaviour. By examining these practices through community experiences, the article contributes to understanding how everyday actions interact with the conditions that enable or constrain cholera prevention.

Literature Review

Water Storage and Handling Practices

Water storage is an important household response when water supply is unreliable or insufficient. Households may collect and store larger quantities to ensure that water remains available for drinking, cooking, and other domestic activities. However, storage can introduce contamination risks when containers are uncovered, inadequately cleaned, or accessed using unclean utensils. Contamination may also occur when water is transferred between containers or handled repeatedly during household activities.

Badowski et al. (2011), in their qualitative study of household practices in Dar es Salaam, identified uncovered drinking-water containers and inadequate water-handling practices among the potential behavioural pathways contributing to diarrhoeal disease risks. Similarly, Chae et al. (2022) demonstrated that household water safety and treatment practices remained important considerations during a cholera epidemic in Dar es Salaam.

Evidence from systematic reviews also indicates that household water storage and water-source characteristics are relevant to cholera risk. Wolfe et al. (2018) identified associations between symptomatic cholera infection and factors including unimproved water sources and open-container water storage. These findings suggest that the safety of drinking water depends not only on its source but also on what happens between collection and consumption.

Nevertheless, water storage should not automatically be interpreted as irresponsible behaviour. Where reliable water supply is unavailable, storing water may be a necessary adaptation. The relevant question is whether households have the resources, knowledge, and facilities required to store and handle water safely.

Household Water Treatment Practices

Water treatment is another important behavioural practice in cholera prevention. Treating drinking water appropriately can reduce exposure to waterborne pathogens, particularly when the safety of a source is uncertain. Recommended household practices may include boiling or using appropriate disinfection methods, depending on the circumstances and available guidance.

However, treatment requires knowledge, resources, and consistent application. Households may not treat water regularly because of cost, inconvenience, concerns about taste, or confidence that the available source is already safe. Chae et al. (2022) identified gaps in household water-treatment practices during a cholera epidemic in Dar es Salaam. Their findings demonstrate the importance of understanding why recommended practices are not always implemented consistently.

Research on water, sanitation, and hygiene also indicates that the relationship between household behaviour and cholera transmission is affected by changing environmental conditions. Jones et al. (2020) reviewed WASH-related risk factors and developed a causal process diagram explaining how these factors may interact under changing climatic conditions.

These findings indicate that water treatment should be examined as part of a broader sequence of water collection, storage, handling, and consumption. Effective prevention requires both appropriate practices and the conditions that make them feasible.

Food Hygiene and Preparation Practices

Food hygiene concerns the handling, preparation, storage, and serving of food in ways that reduce contamination. Inadequate access to clean water, unclean utensils, contaminated preparation surfaces, and unsafe handling may create opportunities for pathogens to reach food. These concerns are relevant in households and in settings where food is prepared or sold to the public.

Cholera prevention therefore requires attention to food safety alongside drinking-water safety. Ali et al. (2015) emphasised the continuing global burden of cholera and the need for effective prevention strategies. Research into cholera outbreaks has also identified the significance of food-related exposure and hygiene conditions in particular settings (Wolfe et al., 2018).

Food hygiene is not determined solely by whether individuals understand health recommendations. Vendors and household members also need appropriate facilities, clean water, adequate space, and practical opportunities to maintain hygiene. Consequently, food-safety education should be supported by environmental health supervision and services that enable hygienic preparation and storage.

Handwashing and Personal Hygiene

Handwashing can reduce the transfer of pathogens when performed at appropriate times and with adequate water and soap. Relevant occasions include after using the toilet, after cleaning a child, before preparing food, and before eating. However, awareness of handwashing does not guarantee that recommended practices are followed consistently.

Badowski et al. (2011) found that household members in Dar es Salaam could recognise the importance of hygiene while facing practical constraints in maintaining recommended behaviours. Similarly, evidence from cholera research indicates that handwashing practices and sanitation conditions can be important factors in outbreak vulnerability (Nauja et al., 2019; Wolfe et al., 2018).

The availability of water, soap, and accessible handwashing facilities affects whether people can practise hand hygiene routinely. Where water is scarce or facilities are inconveniently located, households may struggle to sustain recommended practices. This suggests that effective handwashing promotion requires practical resources as well as repeated communication.

Waste Disposal and Health-Seeking Behaviour

Waste disposal influences the cleanliness of residential surroundings and the condition of drainage systems. Improper disposal of solid waste may obstruct drains, contribute to stagnant water, and worsen environmental conditions. Where waste collection services are irregular, residents may face difficulties finding convenient and reliable ways to dispose of household refuse.

Ngingo et al. (2023) identified improper waste disposal and other socioecological factors among the conditions associated with cholera outbreaks in Tanzania. Penrose et al. (2010) also demonstrated the importance of urban settlement conditions and infrastructure in understanding cholera risk in Dar es Salaam. These studies indicate that household waste practices should be considered alongside municipal service provision and settlement conditions.

Health-seeking behaviour is another relevant practice. Recognising symptoms and seeking prompt professional assessment may help reduce delays in appropriate treatment. However, community members' responses may be influenced by their interpretation of symptoms, previous experiences, access to services, and the information available to them. Understanding these decisions can inform community engagement and cholera-prevention planning.

Theoretical Framework

This article is guided by Social Determinants of Health Theory and Vulnerability Theory. The two perspectives provide a basis for examining how behavioural practices interact with material resources, institutional services, and environmental conditions to shape community vulnerability to cholera.

Social Determinants of Health Theory

Social Determinants of Health Theory explains that health outcomes are influenced by the conditions in which people are born, grow, live, work, and age. These conditions affect the opportunities individuals and communities have to protect their health. In the context of cholera prevention, access to safe water, sanitation, health information, and waste-management services influences the choices available to households.

The theory is relevant because community behavioural practices do not occur in isolation. For example, the ability to treat drinking water depends partly on access to suitable treatment methods and the resources required to use them. Similarly, handwashing depends on water, soap, and accessible facilities. The theory therefore helps explain why residents who understand preventive recommendations may still experience difficulties implementing them.

Vulnerability Theory

Vulnerability Theory provides a complementary perspective by examining how exposure to hazards interacts with sensitivity and adaptive capacity. In the present study, cholera vulnerability is considered in relation to community practices and the circumstances that may increase or reduce exposure to contamination.

The theory helps explain why environmental pressures may affect communities differently. During heavy rainfall or flooding, unsafe water handling, inadequate waste disposal, and weaknesses in sanitation may become more consequential. Communities with reliable water services, accessible sanitation facilities, and effective waste collection may have more opportunities to maintain protective practices.

Together, the theories support an interpretation of behavioural practices as actions shaped by social and environmental conditions. They also help avoid attributing cholera vulnerability exclusively to individual behaviour when community members may face substantial structural constraints.

Methodology

Research Approach and Design

The study adopted a qualitative research approach to understand community experiences, perceptions, and everyday practices associated with cholera vulnerability in Kinondoni Municipality, Dar es Salaam, Tanzania. The qualitative approach was appropriate because the objective concerned how people understood and practised behaviours related to water, food hygiene, sanitation, and personal hygiene within their daily circumstances.

The study focused on Kigogo, Tandale, and Msasani wards. These settings provided a context for exploring how community members experienced behavioural practices and the social and environmental circumstances surrounding cholera prevention.

Participants and Sampling

Purposive sampling was used to identify participants with relevant experience or knowledge of community practices, cholera prevention, and environmental health. The dissertation reports seven community members, five key informants, and three focus group discussions involving ten participants each, giving a total of 42 participants.

The participants included adult community members and relevant stakeholders whose perspectives helped contextualise household and community practices. Community members contributed accounts of everyday routines, while key informants provided perspectives informed by their professional or community roles. Focus group discussions provided opportunities to explore shared experiences and different interpretations of behavioural practices.

Data Collection

Data were collected through semi-structured interviews, key informant interviews, and focus group discussions. The interviews explored participants' experiences of water storage, water treatment, food preparation, handwashing, waste disposal, and related practices. The discussions also considered the social and environmental circumstances that influenced these behaviours.

These methods enabled the study to examine practices as part of everyday life rather than as isolated actions. Participants' accounts were used to identify the challenges they encountered and the conditions they considered important for maintaining safer practices.

Data Analysis and Ethical Considerations

The data were analysed thematically. The analysis identified recurring patterns and organised them into themes concerning water storage and handling, water treatment, food hygiene, handwashing, and waste disposal and health-seeking behaviour.

Participant identifiers, including CM01, CM03, CM05, CM06, and CM07, are retained where they appeared in the supplied dissertation. These identifiers help preserve confidentiality while distinguishing individual accounts. The final article should report the exact ethical approval details and consent procedures documented in the approved dissertation and research permits.

Findings and Discussion

Water Storage and Handling Practices

Water storage emerged as an important behavioural practice associated with community vulnerability to cholera. Participants described storing larger quantities of water when supply interruptions occurred. This practice helped households maintain water availability for drinking, cooking, and other domestic needs. However, participants also identified concerns associated with prolonged storage, container reuse, uncovered containers, and the use of utensils that might contaminate stored water. One community member explained:

> *"During shortages, households store larger quantities of water. The longer water is stored, the more important it becomes to keep containers covered and use clean utensils. Some families reuse containers for different purposes, creating opportunities for contamination." (CM05, 2026).*

The account demonstrates that water storage served both an adaptive and a potentially risky function. It helped households respond to unreliable supply, but safe storage depended on how containers were maintained and how water was accessed. These findings are consistent with Badowski et al. (2011), who identified household water handling as an important consideration in understanding diarrhoeal disease risks in Dar es Salaam. They also correspond with Wolfe et al. (2018), whose systematic review identified open-container water storage as a factor associated with symptomatic cholera infection.

The findings suggest that vulnerability cannot be explained by the decision to store water alone. Households may store water because they cannot rely on continuous supply. The safety of this practice therefore depends on access to clean containers, secure covers, suitable storage arrangements, and practical information about safe handling.

The findings also highlight the importance of avoiding an exclusively individualistic interpretation of water storage. Residents make decisions about water, but the available choices are shaped by the reliability of water services and the resources available to households. Reliable water supply, appropriate storage containers, and practical education can therefore complement one another in reducing potential exposure.

Household Water Treatment Practices

Water treatment was another important theme. Participants recognised the importance of treating water when its quality was uncertain, but their accounts suggested that treatment was not always consistently practised. Irregular water supply, inconvenience, and household costs could make it difficult to maintain recommended practices. A community member described the practical challenges associated with safe water handling:

> *"Participants emphasised covering containers, avoiding dipping dirty cups into stored water and treating water when they are uncertain about its quality. However, consistent treatment can become difficult when water supply is irregular, treatment is inconvenient, or households face costs." (CM07, 2026).*

This account illustrates the difference between knowing a recommended practice and being able to maintain it consistently. Water treatment requires more than awareness: households must have access to appropriate treatment methods and be able to use them correctly. These findings correspond with Chae et al. (2022), who documented gaps in household water-treatment practices during the cholera epidemic in Dar es Salaam.

The findings further suggest that water treatment should be understood as part of a wider process. Water may be collected from an alternative source, transported, stored, handled, and consumed. Contamination risks may arise at different points along this process. Consequently, treatment alone may not provide adequate protection if water is subsequently handled unsafely.

The implication is that health education should explain feasible methods of treating and protecting water while recognising the circumstances experienced by households. Reliable water services and accessible treatment options may help residents sustain preventive practices. This approach places behavioural change within the broader conditions that enable households to protect their health.

Food Hygiene Practices

Food hygiene emerged as another practice relevant to cholera vulnerability, particularly where food was prepared or sold in settings with limited space and water. Participants described the importance of clean utensils, appropriate water use, and hygienic food-preparation surfaces. However, maintaining these practices could be difficult when the necessary facilities were not readily available. One participant described the practical constraints affecting food hygiene:

> *"Food vendors have to manage water, utensils and food surfaces carefully, but limited space and water availability can make this difficult. Participants explained that food hygiene is easier to maintain when the necessary facilities are nearby, water is available." (CM03, 2026).*

The account suggests that food hygiene was influenced by the conditions under which food was prepared. Although food handlers have responsibilities for maintaining hygiene, the availability of clean water and suitable working spaces can affect their capacity to follow recommended practices.

This finding is consistent with the wider literature on cholera prevention, which emphasises safe food and water as important components of reducing exposure (Ali et al., 2015; Jones et al., 2020). It also supports a social determinants

perspective by showing that behavioural practices are shaped by access to essential resources.

The findings do not establish that particular vendors caused cholera transmission. Rather, they demonstrate that participants perceived constraints on food hygiene as relevant to community vulnerability. The appropriate response is therefore to combine practical health education with access to water, appropriate facilities, environmental health guidance, and routine supervision.

Such an approach recognises the responsibilities of food handlers while also acknowledging the role of local authorities and service providers in creating conditions that make safe food preparation possible.

Handwashing Practices

Handwashing was recognised by participants as an important preventive practice, but its consistent implementation depended on the availability of water, soap, accessible facilities, and reminders. Participants indicated that hygiene was easier to maintain when necessary supplies were readily available. They also suggested that attention to handwashing could increase during cholera outbreaks and decline when immediate public concern reduced.

A community member described the relationship between awareness and practical conditions:

> *"Handwashing messages are widely understood, but practice varies depending on whether water and soap are readily available. Participants said hygiene is easier to maintain when facilities are nearby and when people are reminded regularly by health workers." (CM06, 2026).*

The quotation indicates that understanding the importance of handwashing does not automatically ensure consistent practice. Access to water and soap, the location of facilities, and established daily routines all influence whether the practice can be maintained.

This finding is consistent with Badowski et al. (2011), who reported that awareness of hygiene risks among households in Dar es Salaam did not always translate into recommended behaviour. It also aligns with the broader evidence linking handwashing and other household practices with cholera vulnerability (Wolfe et al., 2018).

The findings suggest that handwashing campaigns should be supported by accessible facilities and reliable supplies. Repeated communication may reinforce the practice, but it cannot fully compensate for the absence of water or soap. Similarly, facilities may have limited value if they are poorly maintained or are not conveniently located.

Handwashing should therefore be promoted as a routine practice supported by both household action and service provision. Community engagement, health education, and reliable access to water and soap may jointly improve the feasibility of maintaining appropriate hygiene.

Waste Disposal and Health-Seeking Behaviour

Participants' accounts also indicated that waste disposal and health-seeking behaviour were relevant to community vulnerability. Informal disposal could occur when formal waste collection was delayed or unavailable. Accumulated waste could contribute to environmental deterioration and obstruct drainage, particularly where settlement conditions placed pressure on waste-management services.

These accounts suggest that waste-disposal practices were influenced by the alternatives available to residents. Appropriate disposal requires individual participation, but it also depends on accessible disposal points, reliable collection schedules, and effective municipal management. The findings are consistent with Ngingo et al. (2023), who identified improper waste disposal among the socioecological factors associated with cholera outbreaks in Tanzania. They also correspond with Penrose et al. (2010), whose analysis highlighted the relationship between urban settlement conditions and cholera risk in Dar es Salaam.

The study also considered health-seeking behaviour as part of community responses to cholera-related symptoms. Participants' accounts indicated that community members' responses could be influenced by their interpretation of symptoms, existing knowledge, and access to appropriate information and services. However, the findings should not be interpreted as demonstrating that every resident delayed treatment or relied on home remedies.

The findings highlight the importance of accessible health information and communication that encourages prompt assessment when cholera is suspected. Community leaders and health professionals can support such efforts by providing understandable information about symptoms, prevention, and appropriate responses.

Overall, waste disposal and health-seeking demonstrate that behavioural practices extend beyond household hygiene. They are also connected to public services, community communication, and institutional responsiveness. Effective cholera prevention therefore requires cooperation between residents, municipal authorities, environmental health officers, and healthcare providers.

Conclusion

This article explored how community behavioural practices contribute to cholera vulnerability among community members in Kinondoni Municipality, Tanzania. The findings identified five interconnected areas: water storage and handling, household water treatment, food hygiene, handwashing, and waste disposal and health-seeking behaviour. These practices were important because they could influence opportunities for contamination and the ability of households to maintain preventive measures.

Water storage helped households respond to interruptions in supply, but unsafe handling could create additional concerns. Water treatment was recognised as important, although consistent application could be constrained by cost, inconvenience, and the circumstances surrounding water access. Food hygiene depended on clean water, suitable facilities, and hygienic handling. Handwashing required water, soap, accessible facilities, and sustained attention. Waste disposal, meanwhile, was influenced by both household practices and the reliability of municipal collection services.

The study concludes that behavioural practices should not be understood solely as individual choices. Residents make decisions within social, economic, infrastructural, and environmental conditions that may enable or constrain preventive action. Therefore, reducing cholera vulnerability requires more than awareness campaigns. It also requires reliable water supply, appropriate sanitation, accessible handwashing facilities, safe water-treatment options, improved waste management, and sustained community engagement.

Because the study was qualitative and conducted in selected wards, its findings provide contextual understanding rather than statistical estimates of cholera risk across the municipality. Nevertheless, the findings demonstrate the value of examining everyday community practices alongside the conditions in which those practices occur.

Recommendations and Implications

First, Kinondoni Municipal Council and relevant water-service providers should strengthen the reliability of water supply so that households are less dependent on uncertain alternative sources and prolonged storage. Community education should also provide practical guidance on covering containers, using clean utensils, and protecting stored water from contamination.

Second, health education programmes should promote appropriate water treatment, safe food handling, and consistent handwashing. Messages should be delivered through locally accessible channels and supported by demonstrations that reflect the circumstances of households and food vendors. Access to water, soap, and suitable facilities should accompany communication activities.

Third, municipal authorities should strengthen waste collection and provide accessible disposal facilities. Community participation in environmental cleanliness should be encouraged, but it should complement rather than replace municipal responsibility for waste-management services, drainage maintenance, and environmental health monitoring.

Fourth, health workers and community leaders should provide clear information about cholera symptoms, prevention, and appropriate health-seeking responses. Sustained communication can help communities maintain preventive attention beyond periods of active outbreaks.

Finally, future research should examine how household income, settlement conditions, water-service reliability, and community participation influence the maintenance of preventive behaviours across different urban settings. Such research could help identify interventions that are both socially appropriate and practically achievable.

References

1. Ali, M., Nelson, A. R., Lopez, A. L., & Sack, D. A. (2015). Updated global burden of cholera in endemic countries. *PLOS Neglected Tropical Diseases*, *9*(6), Article e0003832. https://doi.org/10.1371/journal.pntd.0003832
2. Ali, M., Lopez, A. L., You, Y. A., Kim, Y. E., Sah, B., Maskery, B., & Clemens, J. (2012). The global burden of cholera. *Bulletin of the World Health Organization, 90*(3), 209–218A. https://doi.org/10.2471/BLT.11.093427
3. Badowski, N., Castro, C. M., Montgomery, M., Pickering, A. J., Mamuya, S., & Davis, J. (2011). Understanding household behavioral risk factors for diarrheal disease in Dar es Salaam: A photovoice community assessment. *Journal of Environmental and Public Health, 2011*, Article 130467. https://doi.org/10.1155/2011/130467
4. Chae, S.-R., Lukupulo, H., Kim, S., Walker, T., Hardy, C., Abade, A., Urio, L. J., Mghamba, J., & Quick, R. (2022). An assessment of household knowledge and practices during a cholera epidemic—Dar es Salaam, Tanzania, 2016. *The American Journal of Tropical Medicine and Hygiene*, *107*(4), 766–772. https://doi.org/10.4269/ajtmh.21-0597
5. Hashizume, M., Armstrong, B., Hajat, S., Wagatsuma, Y., Faruque, A. S. G., Hayashi, T., & Sack, D. A. (2008). The effect of rainfall on the incidence of cholera in Bangladesh. *Epidemiology*, *19*(1), 103–110. https://doi.org/10.1097/EDE.0b013e31815c09ea
6. Jones, N. A., Bouzid, M., Few, R., Hunter, P. R., & Lake, I. R. (2020). Water, sanitation and hygiene risk factors for the transmission of cholera in a changing climate: Using a systematic review to develop a causal process diagram. *Journal of Water and Health, 18*(2), 145–158. https://doi.org/10.2166/wh.2020.088
7. Mwambete, K. D., & Manyanga, V. (2006). Microbial quality of drinking water in Dar es Salaam and use of Waterguard® as disinfectant. *Tanzania Medical Journal, 21*(1), 22–24. https://doi.org/10.4314/tmj.v21i1.39206
8. Nauja, R. H., Bugoye, F. C., & Rongo, L. M. B. (2019). Knowledge, perceptions and practices on cholera transmission and prevention measures among heads of household members in Kigamboni Municipality, Dar es Salaam, Tanzania. *International*

Journal of Research—GRANTHAALAYAH, 7(11). https://doi.org/10.29121/granthaalayah.v7.i11.2020.331

9. Ngingo, B. L., Mchome, Z. S., Bwana, V. M., Chengula, A., Mwanyika, G., Mremi, I., Sindato, C., & Mboera, L. E. G. (2023). Socioecological systems analysis of potential factors for cholera outbreaks and assessment of health system's readiness to detect and respond in Ilemela and Nkasi districts, Tanzania. *BMC Health Services Research, 23*, Article 1261. https://doi.org/10.1186/s12913-023-10263-7
10. Penrose, K., de Castro, M. C., Werema, J., & Ryan, E. T. (2010). Informal urban settlements and cholera risk in Dar es Salaam, Tanzania. *PLOS Neglected Tropical Diseases, 4*(3), Article e631. https://doi.org/10.1371/journal.pntd.0000631
11. Wolfe, M., Kaur, M., Yates, T., Woodin, M., & Lantagne, D. (2018). Individual and household risk factors for symptomatic cholera infection: A systematic review and meta-analysis. *Open Forum Infectious Diseases, 5*(1), Article ofy299. https://doi.org/10.1093/ofid/ofy299
12. Manaseh, B. A., Gachohi, J., Karanja, S., & Mwachari, C. (2023). Water, sanitation and hygienic (WASH) risk factors that promote cholera outbreaks in Nairobi County. *African Journal of Health Sciences, 36*(2), 104–112. https://doi.org/10.4314/ajhs.v36i2.2
13. Harris, J. B., LaRocque, R. C., Qadri, F., Ryan, E. T., & Calderwood, S. B. (2012). Cholera. *The Lancet, 379*(9835), 2466–2476. https://doi.org/10.1016/S0140-6736(12)60436-X
14. Deen, J., Mengel, M. A., & Clemens, J. D. (2020). Epidemiology of cholera. *Vaccine, 38*(Suppl. 1), A31–A40. https://doi.org/10.1016/j.vaccine.2019.07.078
15. Taylor, D. L., Kahawita, T. M., Cairncross, S., & Ensink, J. H. J. (2015). The impact of water, sanitation and hygiene interventions to control cholera: A systematic review. *PLOS ONE, 10*(8), Article e0135676. https://doi.org/10.1371/journal.pone.0135676
16. Rebaudet, S., Sudre, B., Faucher, B., & Piarroux, R. (2013). Cholera in coastal Africa: A systematic review of its heterogeneous burden and epidemiology. *The Journal of Infectious Diseases, 208*(Suppl. 1), S98–S106. https://doi.org/10.1093/infdis/jit210
17. Clemens, J. D., Nair, G. B., Ahmed, T., Qadri, F., & Holmgren, J. (2017). Cholera. *The Lancet, 390*(10101), 1539–1549. https://doi.org/10.1016/S0140-6736(17)30559-7
18. Lantagne, D., Yates, T., & Mintz, E. (2014). Household water treatment and safe storage: A review of current implementation practices. *Journal of Water, Sanitation and Hygiene for Development*. https://doi.org/10.2166/washdev.2014.111