BJBMB

Biobacta Journal of Biochemistry and Molecular Biology

https://bjbmb.spbhj.org

SPBH

Assessment of Knowledge and Preventive Behaviours Regarding Cholera among School Students in Latakia, Syria.

Mahdi Abed Neamah AL Musawi[1*], Frial Mahmoud Nizamli[2], Roqia Khairallah Muzhir[3]

Huda Shawky Mahmud[4]

[1]Department of Nursing, University of Kut, Wasit, 52001, Iraq.

Corresponding author: E-mail: dr.almusawi14@alkutcollge.edu.iq.

[2]Department of Nursing, University of Kut, Wasit, 52001, Iraq.

[3]College of Medicine, University of Baghdad, Baghdad, Iraq.

[4]Pediatric Nursing Department, College of Nursing, University of Hilla, Babylon, Iraq.

DOI: 10.71428/BJBMB.2025.0106

Abstract

Background: Cholera remains a global health hazard and a sign of underdevelopment in many countries. **Aim**: This study aimed to assess the knowledge and preventive behaviours of school students towards cholera in Latakia after a recent outbreak. **Method:** This study used a cross-sectional design. The study included 150 participants aged 13-15 years. Data was collected from March to April 2024 at Ghassan Zwan school in Latakia. The questionnaire was developed based on previous studies. **Results:** Based on the percentage mean, the students' knowledge and preventive behaviours scale would be categorized into three levels: <30% considered inadequate, 30-70% considered adequate, and >70% considered good. The majority of the participants demonstrated adequate knowledge (66.75%) and good preventive behaviour (78.91%) toward cholera. There is a difference in knowledge between male and female participants. **Conclusion:** enhanced knowledge and preventive behaviour levels play an essential role in reducing the prevalence rate during an outbreak. further research on the preventive behaviours of cholera among primary school pupils is recommended.

Keywords: Cholera, knowledge, preventive behaviours, Syria

Introduction:

Cholera remains a significant global public health threat, indicating underdevelopment and social inequity in many countries. Annually, it affects 1.3–4 million people, causing 21,000–143,000 deaths worldwide (*1-3*). Recent cholera outbreaks have affected multiple countries over the past few years, mainly in Asia and Africa, such as India, Sudan, Pakistan, and Bangladesh. In 2020, 323,369 cases and 857 deaths were reported in 24 countries (*4*). The healthcare system in Syria has been significantly impacted by years of war and political instability, leading to limited access to healthcare services for the population. The Syrian War affected the health sector for the Syrian population inside and outside Syria after ten years of war, when many healthcare facilities were destroyed, damaged, or understaffed, resulting in inadequate healthcare delivery and the spread of infectious diseases (*5-7*). Moreover, on February 06, 2023, a catastrophic earthquake struck the regions of southern and central Turkey and northern and western Syria. The earthquake caused massive damage in many cities in Turkey and Syria and resulted in 51.000 casualties in both countries,

Received: January 1, 2025. Accepted: March 19, 2025. Published: April 22, 2025

with over 17.9 million affected people and 195,000 buildings heavily damaged or destroyed (*8*). Under these conditions, Syria currently faces a cholera outbreak. According to a recently published report by the World Health Organization (WHO), cholera outbreaks in Syria remain a significant threat to public health. Since August 25, 2022, 77,561 suspected cases of acute watery diarrhea have been reported, including 100 attributed deaths, with a fatality rate of 0.13%. Although the reported number of suspected cases has been reduced in some areas, the overall cumulative cases continue to increase (*8*). Cholera is defined as an acute bacterial infection caused by *Vibrio cholerae*. The symptoms of cholera can range from mild to severe diarrhea, vomiting, and abdominal pain (*9*). Vomiting and abdominal colic are also common symptoms (*10*). Cholera outbreaks typically occur in areas contaminated with water or food, owing to poor sanitary measures (*11*). Therefore, improving public hygiene, water sanitation, and sewage systems is key to preventing cholera outbreaks. Furthermore, encouraging vaccination coverage for cholera is an important strategy to reduce its incidence (*12*,*13*). Another factor contributing to the spread of cholera is the lack of knowledge and awareness among the public about its modes of transmission and early methods of detection and treatment of symptoms (*14*). Cholera can spread in several ways. For example, in schools, students often purchase food from vendors who do not cover their food, exposing them to flies that may carry the cholera-causing bacteria. Additionally, toilets are not used properly or are not cleaned frequently, creating breeding grounds for *Vibrio cholerae*. If a student with cholera uses these facilities, flies can come into contact with their waste and then land on food, potentially sparking a cholera outbreak in schools (*15*). The knowledge and practice of school students regarding cholera prevention strategies are crucial for planning, executing, and evaluating health education programs. It is important to note that preventing cholera through strategic measures is more cost-effective and efficient than treating it. Studying community knowledge and practices related to cholera outbreaks can help identify areas that play a critical role in reducing exposure to infectious agents, lowering cholera morbidity, and determining appropriate public health responses. Therefore, this study aims to investigate the knowledge and preventive behaviours of school students toward cholera in Latakia city. Families in Syria have endured difficult experiences as a result of the earthquake and war, which have affected various aspects of their lives, including challenges in accessing healthcare for their children. Cholera has been a major burden on the health sector following the crisis, particularly impacting children and adolescents. There is an urgent need to gather information about cholera to effectively plan, implement, and evaluate health education programs.

Objectives:

This study aims to assess knowledge and preventive behaviors regarding cholera among school students in Latakia.

The specific objectives are as follows:

-To examine the knowledge of school students regarding cholera in Latakia, Syria.

-To evaluate the preventive behaviors of school students regarding cholera in Latakia, Syria.

- To evaluate the information sources about cholera by students.

Materials and Methods

Research design:

A cross-sectional study with a descriptive research design was used to achieve the aim of the current study. The research was conducted with intermediate school students at Ghassan Zwan school in Latakia, Syria.

Sample and sample size:

A stratified simple random technique was used to select a total of 150 students from each class level in the three selected stages of intermediate school

students at Ghassan Zwan school in Latakia, Syria. The students who met the required criteria were not more than 16 years old, students in the first, second and third stages and those who accepted to participate in this study.

Data collection:

A self-structured questionnaire was used to collect data on students' knowledge and protective behavior related to cholera. The questionnaire was validated by experts and found to have good internal consistency with a Cronbach's alpha of 0.85, which is within an acceptable range. The questionnaire consisted of 24 items divided into four sections. Section (A) contained four items focusing on the demographic characteristics of the respondents, including gender, age, studying year and economic status. Section (B) contained 12 items measuring the level of knowledge about cholera, using a 3-point Likert scale (1 for yes, 2 for no, and 3 for don't know), with a total score range of 13 to 39. Section (C) contained 12 items assessing practices related to cholera, with two answer options (yes or no) and a total score range of 12 to 24. Section (D) focused on identifying resources of information about cholera. Based on the percentage mean, the students' knowledge and protective behaviour scale would be categorized into three levels: <30% considered inadequate, 30-70% considered adequate, and >70% considered good. It took each student 5-10 minutes to fill out the questionnaire. Data assessment statement: The datasets generated during and/or analyzed during the current study are not publicly available due to participants' privacy but are available from the corresponding author upon reasonable request.

Ethical considerations:

At the outset, written approvals were obtained from research ethics committee at the university (Issue:1533/2024-004). Following this, approval was obtained from the school administration. Verbal informed consent was also obtained from all participating students. Additionally, the questionnaire was distributed anonymously, and participants were assured that all information would be kept strictly confidential and used only for research purposes.

Data analysis:

Data analysis was conducted using SPSS version 25. The study variables were analyzed descriptively, using frequency and percentage to describe the characteristics of the sample.

Results:

The study included 150 participants aged 13-15. The majority of participants were females, accounting for 86 (57.4%) of the total (Figure 1). The age distribution was equal among 13, 14, and 15-year-olds, with each age group representing 33%, 33%, and 34%, respectively (Figure 2).

As outlined in Table 1, the findings revealed that 126 (84%), 120 (80%), and 122 (81.4%) of participants were aware that cholera could be transmitted through contaminated water, contaminated food, and poor hygiene, respectively. However, 83 (55.4%) did not know that mosquitoes can transmit cholera, and 90(60%) were unaware of the existence of a cholera vaccine. Additionally, 86 (57.4%) of the sample understood that cholera could be transmitted through water tanks, while 71 (47.4%) believed transmission could occur through direct contact with others. Surprisingly, 123 (82%) did not know of the possibility of spread through poor sanitation.

The majority of the students reported washing their hands after using the toilet. Additionally, the food at their house was well-cooked and properly covered. However, a significant portion of respondents (68%) used to eat exposed food, and an even larger percentage (89.4%) reported eating meals outside the home. More than half of the respondents used to wash their hands before eating, but a larger percentage used to wash their hands after eating. On

the other hand, only 8.6% mentioned washing their hands after nosebleeds, sneezes, or coughs (Table 2).

Participants were surveyed to assess their knowledge of cholera. The majority of the participants had adequate knowledge (66.75%) with a mean scale of (21.26 ± 4.12). The study also investigated the preventive behaviors adopted by intermediate secondary school students to combat cholera. Results of the study revealed that the majority of the participants had good practice (78.91%) toward cholera, with a mean scale of 74.37 ± 11.28.

The study also reveals the difference in demographic characteristics in the knowledge of cholera among intermediate school students by their gender. Female students showed higher knowledge levels (Mean = 22.13, SD = 2.04) compared to male students (Mean = 19.12, SD =2.14) (Table 3).

The main sources of information about cholera were teachers, 47 (31.3%), followed by awareness campaigns, 42 (28%), and the internet, 41 (27.3%). Meanwhile, radio, brochures, and posters were the least common sources of information, with only 5 respondents (3.4%). No respondents had received information from newspapers (Figure 3).

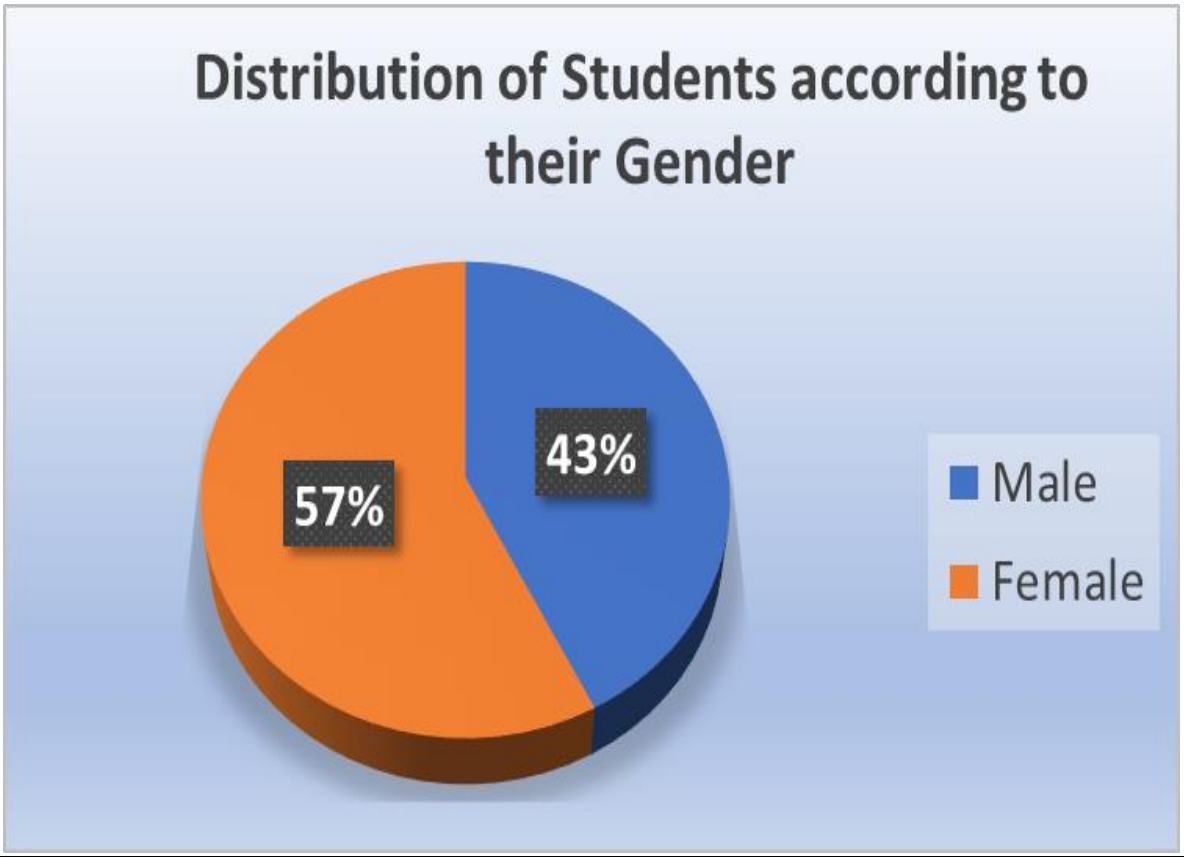

Figure 1: Distribution of the students according to their gender

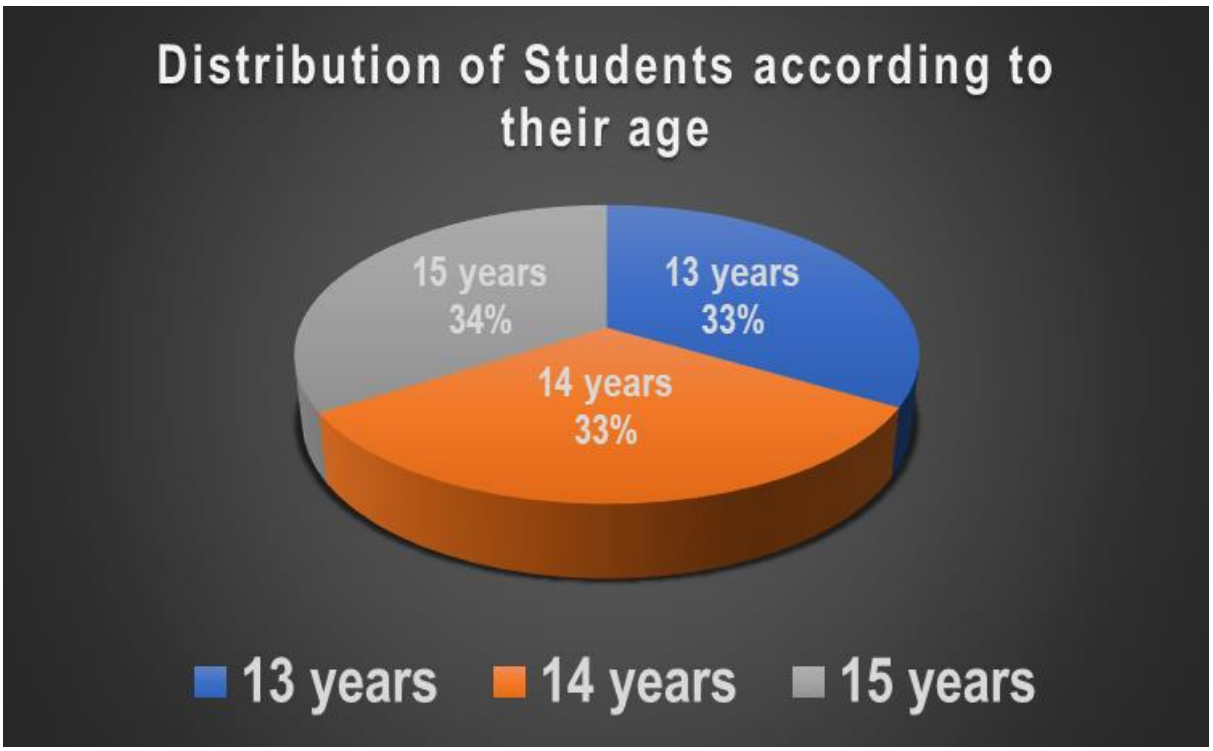

Figure 2: Distribution of the students according to their age.

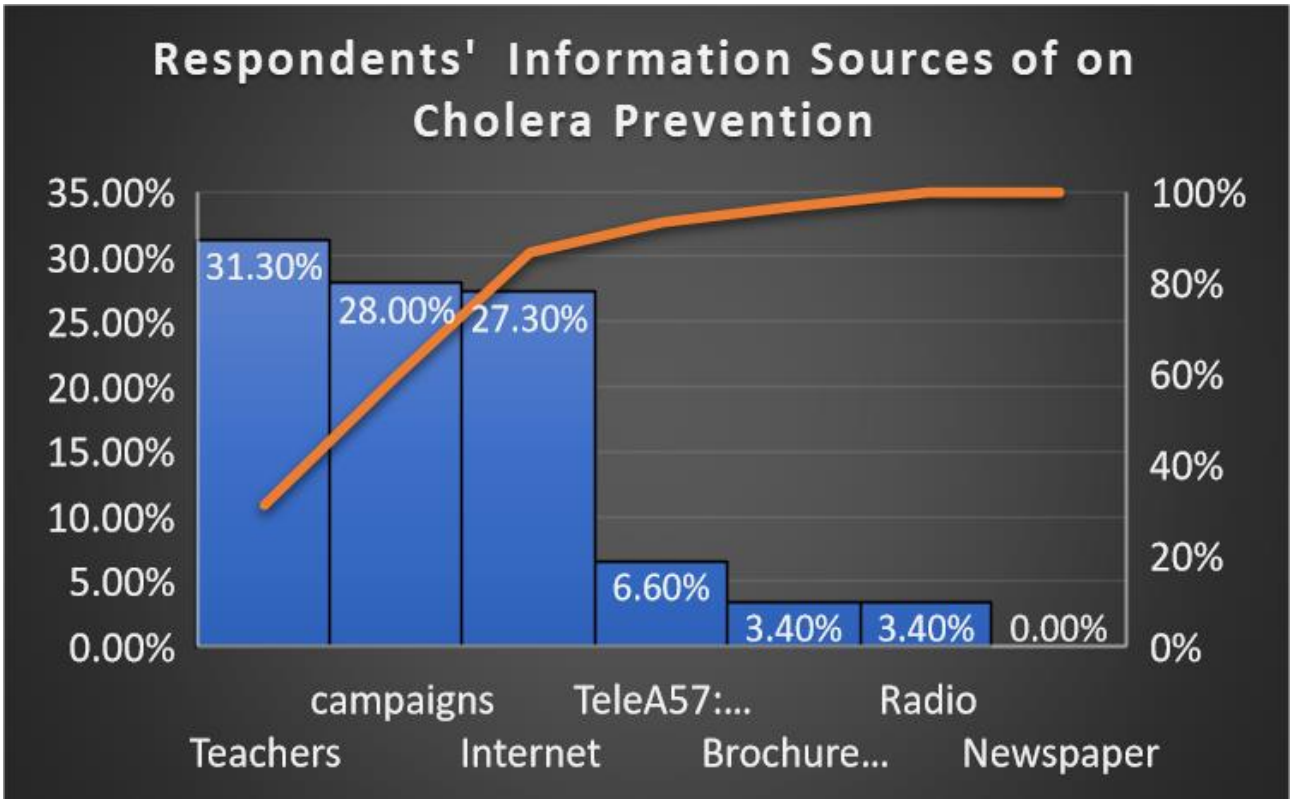

Figure (3): Respondents' information sources on cholera prevention.

Table 1: Knowledge regarding cholera among school students.

Responses to knowledge questions	Yes		No		I don't know	
	N	%	N	%	N	%
Is it possible to eliminate cholera?	104	69.4%	19	12.6%	27	18%
Is it cured with herbs?	83	55.4%	30	20%	37	24.6%
Does cholera spread through contaminated water	126	84%	12	8%	12	8%
Does cholera spread through contaminated food	120	80%	14	9.4%	16	10.6%
Does cholera spread by flies& Mosquitoes	33	22%	34	22.6%	83	55.4%
Does cholera spread through poor hygiene	122	81.4%	15	10%	13	8.6%
Does cholera spread through poor sanitation	18	12%	9	6%	123	82%
Does the cholera spread through communication with others	71	47.4%	45	30%	34	22.6%
Is there a vaccine for cholera?	32	21.4	90	60%	28	18.6%
Does it spread through water sources (drinking water and rivers)	101	67.4%	19	12.6%	30	20%
Can it spread through unused domestic water tanks?	86	57.4%	22	14.6%	42	28%
Does it spread through faeces?	9	6%	36	24%	105	70%

Table 2: Preventive behaviours regarding cholera among school students.

Preventive behaviour	Yes		No	
	N	%	N	%
Do you wash your hands after using the toilet?	143	95.4%	7	4.6%
Is your homemade food cooked well?	137	91.4%	13	8.6%
Is the food at your home properly covered	138	92%	12	8%
Do you drink water from unknown/ unclean sources?	39	%26	111	74%
Do you eat exposed food?	102	68%	48	32%
Do you eat fruits and vegetables after washing them very well?	128	85.4%	22	14.6%
Is household waste disposed of daily?	131	87.4%	19	4.6%
Do you use utensils after washing them properly with clean water?	143	95.4%	7	4.6%
Do you wash your hands before eating?	90	60%	60	40%
Do you wash your hands after experiencing nosebleeds, sneezing, or coughing?	13	8.6%	137	91.4%
Do you wash your hands after eating?	105	70%	45	30%
Do you eat meals outside the home?	134	89.4%	16	10.6%

Table 3: Differences in their knowledge of cholera based on gender.

Gender	Mean	Standard Deviation	Mean Difference
Male	19.12	2.14	3.01
Female	22.13	4.04	

Discussion:

The study evaluated the knowledge and preventive behaviors toward cholera among school students in Latakia, Syria. The average level of adequate knowledge about cholera in the Syrian community was 66.75%, which was higher compared to other countries that had experienced cholera outbreaks. However, it is important to note that many students still lacked sufficient knowledge about cholera. A study by Mourad KA et al revealed that students' knowledge was very low, with only a few students knowing how to protect themselves and practice disease prevention (*16*). Similarly, a survey by Nauja et al indicated that the knowledge of the Tanzanian population was lacking, highlighting the urgent need for awareness programs to improve this level (*17*). On the other hand, a study by Marwan Akel et al in 2023 showed good overall practices related to cholera (*18*).

Our study results indicate that participants attribute the spread of cholera to contaminated water and food. This finding aligns with a 2022 study by researchers from the University of Aleppo, Damascus, and Cairo, which also identified contaminated water as the primary cause of cholera (*19*). Regarding the existence of a cholera vaccine, our study shows that students have little knowledge about it, consistent with a study by Diana Malaeb et al. in 2022, which found suboptimal awareness about the cholera vaccine (*20*). This result is incongruent with a 2023 study by Jamaleddine et al. in Lebanon, which showed that most participants were knowledgeable about the cholera vaccine (*21*), likely due to differences in the age of the study samples. Our study discovered that a large percentage of students were aware of cholera prevention methods, and most of them washed their hands after using the bathroom and before eating. This correlates with a study in Tanzania in 2019, which also found that most participants practiced hand washing with soap to prevent cholera (*17*).

Another study in South Africa by Ncube et al (2016) found that ninety percent of the respondents indicated they knew how to prevent contracting cholera (*22*). In a study conducted in Katsina State, it was found that junior secondary school students did not adequately practice cholera prevention strategies (*15*). However, this finding aligns with research by Siddique (2016), which revealed that 376 students, representing 87% of the respondents, did not practice proper handwashing with soap and water (*23*). Additionally, our study's results differ from those of studies conducted in Jazan, which indicated unsatisfactory prevention methods among the population (*24*). Al Moslem et al. indicated in their study about hand washing knowledge, attitudes, and practices among students in Saudi Arabia that handwashing knowledge and practices among school students in the Eastern Province are acceptable interventions in preventing the transmission of infectious diseases (*25*). It's important to emphasize the need to practice hand washing after defecating and using the toilet.

Moreover, the results of our study showed that 87.4% of participants get rid of household waste daily, which is similar to the Nigerian study mentioned. Additionally, the majority of participants in our study cook food thoroughly well and wash fruits and vegetables before consuming them, which is consistent with a Lebanese study in 2023, where most participants also followed this method of prevention (*21*). Our study found that there was a difference between males and females in their knowledge. This finding was unsupported by multiple studies, including when with junior secondary school students in Katsina State, Nigeria, which found no statistically significant difference in knowledge regarding cholera prevention between sexes (*15*). This study was also unsupported by Wahed et al (2015), which reported that both females and males had high knowledge about cholera, with no statistically significant differences between genders (*26*).

On the other hand, this study revealed that students primarily obtained information from their teachers at school, followed by awareness campaigns. This is

incongruent with the results of a study in Lebanon in 2023, which found that most participants relied on social networking sites for information (*21*). Increasing awareness campaigns in schools and at the national level by national and international organizations may help to interpret these results, especially following the war and earthquake in Syria, during which many organizations, such as the Syrian Arab Red Crescent, contributed by providing information through home visits. Interestingly, our study showed that television, brochures, posters, and radio are the least valuable sources of information, which differs from a study in Malawi in 2021, where television and radio were reported as the most common sources of information (*27*).

CONCLUSION:

Based on the findings of this study, the following conclusions were drawn: intermediate school students in Gassan Zwane have adequate knowledge of cholera and good prevention strategies, but there is still a need for ongoing efforts to educate the public. It is recommended to implement government-recognized educational programs to enhance knowledge and preventive behavior. It is concluded that these programs can play a crucial role in reducing the prevalence rate during outbreaks. Therefore, knowledge enhancement through educational programs is the key target for preventing and managing cholera. The study also suggests conducting further research on cholera prevention among other student groups, such as primary school pupils. Further studies in other regions of Syria are highly recommended. Nevertheless, the present study had some limitations as it included students from only one school and one city in Syria, which could affect the external validity of the results. To our knowledge, this is the first research to assess the knowledge and preventive behaviors of the Syrian population regarding cholera infections. Additionally, school health can collaborate with the local community and international organizations that provide health services and humanitarian aid after the earthquake and the war in Syria. This collaboration can help implement health promotion and educational programs in schools and utilize these programs to enhance personal, family, and school environments in Syria.

Acknowledgements:

The author thanks Kut University College for providing permission to conduct this study and deeply acknowledges all the students and contributors for their time and enthusiasm in participating.

Conflict of interests:

On behalf of all authors, the corresponding author declares that there is no conflict of interest

Funding:

No specific sources of funding were received from any institution

References:

[1] Burnett E, Dalipanda T, Ogaoga D, Gaiofa J, Jilini G, Halpin A et al. Knowledge, attitudes, and practices regarding diarrhea and cholera following an oral cholera vaccination campaign in the Solomon Islands. PLoS Negl Trop Dis. 2016;10 (8):e0004937. doi: 10.1371/journal.pntd.0004937. PMID: 27548678; PMCID: PMC4993445.

[2] Rosdi MA, Rahman NA, Haque M. Knowledge, attitude, and practice regarding cholera among non-academic staff of International Islamic University Malaysia Kuantan medical campus. Bangladesh Journal of Medical Science. 2019; 18 (3):527–35. doi: https://doi.org/10.3329/bjms.v18i3.41621

[3] Ali M, Nelson AR, Lopez AL, et al. Updated global burden of cholera in endemic countries. PLoS Negl Trop Dis. 2015; 9 (6):e0003832. doi: 10.1371/journal.pntd.0003832. PMID: 26043000; PMCID: PMC4455997.

[4] OCHA. Weekly Epidemiological Record (WER), 17 September 2021, 96(37): 445–460

[EN/FR]. Available online: https://reliefweb.int/report/world/weekly-epidemiological-record-wer-17-september-2021.

[5] WHO (2022). Cholera: key facts, https://www.who.int/news-room/fact-sheets/detail/cholera; [accessed 03 July 2023]. [Ref list]

[6] Aldin Alhaffar B, Janos A. Public health consequences after ten years of the Syrian crisis: a literature review. Globalization and Health 2021; 17:111. doi: 10.1186/s12992-021-00762-9. PMID: 34538248; PMCID: PMC8449996.

[7] Tarnas MC, Karah N, Almhawish N, Aladhan I, Alobaid R, Abbara A. Politicization of water, humanitarian response, and health in Syria as a contributor to the ongoing cholera outbreak. Int J Infect Dis. 2023; 131:115–118. doi: 10.1016/j.ijid.2023.03.042. Epub 2023 Mar 27. PMID: 36990201.

[8] OCHA Services, reliefweb. Türkiye earthquake. Bi-weekly highlights https://reliefweb.int/report/turkiye/turkiye-earthquake-march-2023-bi-weekly-highlights- (accessed:7/3/ 2023)

[9] Srivastav Y, Dharmajeet, Kumar M. The Causes, Diagnosis, and Current Course of Medical Care for Cholera. International Journal of Medical Science in Clinical Research and Review. 2023; 6(5): 965-973. doi: 10.5281/zenodo.10041473

[10] World Health Organization (WHO). Cholera: Key Facts. Available online: https://www.who.int/en/news-room/fact-sheets/detail/cholera (accessed on 11 November 2022).

[11] Alkhaledi FA. Knowledge, attitude, and Practice on cholera epidemic in AL-Diwaniya province. Al-Qadisiyah Medical Journal. 2016; 12(22) :98–105. doi: https://doi.org/10.28922/qmj.2016.12.22.98-105.

[12] Anetor GO, Abraham F. Knowledge of cholera and its prevention amongst urban residents of a district in Abuja: The pivotal role of health education. Research Journal of Health Sciences. 2020; 8:102–12. doi:10.4314/rejhs.v8i2.6

[13] Eneh S, Admad S, Nazir A, Onukansi F, Oluwatobi A, Innocent D et al. Cholera outbreak in Syria amid humanitarian crisis: the epidemic threat, future health implications, and response strategy – a review. Front. Public Health. 2023; 11:1161936. doi: 10.3389/fpubh.2023.1161936. PMID: 37408746; PMCID: PMC10319003.

[14] Gallandat K, Huang A, Rayner J, String G, Lantagne DS.. Household spraying in cholera outbreaks: Insights from three exploratory, mixed-methods field effectiveness evaluations. PLOS Negl. Trop. Dis. 2020; 14(8), e0008661. doi: 10.1371/journal.pntd.0008661. PMID: 32866145; PMCID: PMC7485970.

[15] Jacob H. Assessment of Knowledge and practice of cholera prevention strategies among junior secondary school students in Katsina state [Dissertation]. Nigeria: Faculty of Education, Ahmadu Bello University, 2021. https://kubanni.abo.edu.ng/home

[16] Mourad KA, Habumugisha V, Sule BF. Assessing Students' Knowledge on WASH-Related Diseases. Int J Environ Res Public Health. 2019; 16(11):2052. doi: 10.3390/ijerph16112052. PMID: 31185642; PMCID: PMC6604011.

[17] Nauja RH, Bugoye FC, Rongo LM. 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. 2019; 7(11):28–48. . doi: 10.29121/granthaalayah.v7.i11.2020.331

[18] Akel M, Sakr F, Haddad C, Hajj A, Sacre H, Zeenny RM et al. Knowledge, Attitude, and Practices of the General Population toward the Old-New Outbreak of Cholera in a Developing Country. Trop. Med. Infect. Dis. 2023; 8(4), 236. . doi: 10.3390/tropicalmed8040236. PMID: 37104361; PMCID: PMC10144007.

[19] Almoshantaf M, Swed S, Alibrahim H, Bohsas H, Nour Nasif M et al. Knowledge of Cholera Among Syrians: A Cross-Sectional Study . International Journal of Medical Students. 2022;10: 233-233. doi: https://doi.org/10.5195/ijms.2022.1824

[20] Malaeb D, Sallam M, Younes S, Mourad N, Sarray El Dine A et al. knowledge, Attitude, and Practice in a Sample of the Lebanese Population Regarding Cholera. Int J Environ Res Public Health. 2022; 19 (23), 16243. doi: 10.3390/ijerph192316243. PMID: 36498316; PMCID: PMC9735709.

[21] Jamaleddine Y, Tashjian H, Mahmoud M, Azzam W, Daher A, Salameh P et al. Lebanese Population Knowledge, Attitudes, and Practice Regarding Cholera Disease and their Knowledge and Attitude Regarding the Cholera Vaccine Following an Outbreak in Lebanon .Trop Medical Infection Disease. 2023; 8 (4), 236. doi: 10.21203/rs.3.rs-2480449/v1

[22] Ncube A, Jordaan AJ, Mabela BM. Assessing the knowledge, attitudes and practices regarding cholera preparedness and prevention in Ga-Mampuru village, Limpopo, South Africa. Jamba. 2016 Jan 13;8(2):164. doi: 10.4102/jamba.v8i2.164. PMID: 29955301; PMCID: PMC6014007.

[23] Sack DA, Sack RB, Nair GB, Siddique AK. Cholera. Lancet. 2004; 363(9404):223-33. doi: 10.1016/s0140-6736(03)15328-7. PMID: 14738797.

[24] Ali E, Mohamed M, Tawhari M. Knowledge attitude, and practice study regarding cholera among the people in Jazan city, KSA, J. Family Med Prim Care. 2021; 10 (2), 712-717. . doi: 10.4103/jfmpc.jfmpc_965_20. Epub 2021 Feb 27. PMID: 34041066; PMCID: PMC8138396.

[25] Almoslem MM, Alshehri TA, Althumairi AA, Aljassim MT, Hassan ME, Berekaa MM. Handwashing Knowledge, Attitudes, and Practices among Students in Eastern Province Schools, Saudi Arabia. J Environ Public Health. 2021:6638443. doi: 10.1155/2021/6638443. PMID: 34567132; PMCID: PMC8457965.

[26] Wahed T, Kaukab SS, Saha NC, Khan IA, Khanam F, Chowdhury F et al. Knowledge of, Attitude toward, Prevention Practices Relating to Cholera and Oral Cholera Vaccine among Urban High- Risk Groups: : findings of a cross-sectional study in Dhaka, Bangladesh. BMC Public Health. 2013; 7(9):101-110. https://doi.org/10.1186/1471-2458-13-242

[27] WHO & UNICEF. Social, behavioural and community dynamics related to the cholera outbreak in Malawi. Social Science in Humanitarian Action Platform. https://www.rcce-collective.net. (October 2022).