

Household Water, Sanitation, Hygiene Facilities and Practices in Selected Villages of Taraganj Upazilla, Rangpur

Munira Begum¹, Md. Shahriar Morshed², Rehnuma Islam³, Most. Masuma Islam Nisa⁴

1. Assistant Professor
Department of Community Medicine
Rangpur Medical College, Rangpur
2. Assistant Professor
Department of Community Medicine
Rangpur Medical College, Rangpur
3. Lecturer
Department of Community Medicine
Rangpur Medical College, Rangpur
4. Medical Officer
Department of Surgery
Prime Medical college, Rangpur

Correspondence to:

Munira Begum

Assistant Professor

Department of Community Medicine
Rangpur Medical College, Rangpur.

Mobile: 01712153682

Email: munirabegum292@gmail.com



Submission Date : 27 Nov 2022

Accepted Date : 02 Feb 2023

Published Date : 25 Mar 2023

DOI: <https://doi.org/10.3329/jrpmc.v8i1.65060>

Abstract

Background:

Water, sanitation and hygiene (WASH) facilities are considered a basic human necessity for survival and well-being, without these basic needs the health condition of millions of people, especially children and women are at risk. Bangladesh is vulnerable in this regard.

Objectives:

The study aimed to assess household water, sanitation and hygiene facilities and practices in selected villages of Taraganj Upazilla, Rangpur.

Methods:

This cross-sectional study was conducted among 341 rural households from six villages of Taraganj Upazilla, Rangpur district using a pretested semi-structured questionnaire and an observation checklist. Data were collected through face-to-face interview and observing the facilities.

Result:

The respondents of this study were female predominant. Male: female ratio was 1:3 and their average age was 38.16(±14.03) years. Every household were using improved source of water for both drinking and other domestic purposes but only 4.7% households safely treated water for drinking and only in 17.9% households water source was found 50 feet or more from the latrine. About 70.7% respondents kept their drinking water storage container over shelf/table, covered it with lid (65.0%) and 90.4% containers were found clean during observation. Around 95.6% households used an improved toilet facility and in 45.7 % household latrine was situated in their own dwellings. Although on observation of latrines, water collection or storage facility, hand washing facility and soap or detergent availability near them were found 63.2%, 64.4% and 59.9% households respectively. Still 2.1% households had no toilet facility at all. Nearly 19.4% respondents shared their toilet facility with other households. About 90.3% households safely disposed their children's stool. Majority of respondents told that they used soap during washing hands before meal (84.8%) and after defecation (98.2%). During observation of the site for hand washing, water supply and soap or detergent availability were found in 97.7% and 83.3% households respectively. Good practices for drinking water, sanitation and hygiene were found among 4.7%, 71.6% and 92.7% households respectively.

Conclusion:

These findings are suggestive of need to come up with strategies of health education and promotion to ensure that rural households understand the importance of safe treatment of drinking water, safe disposal of child's stool and safe distance of latrine from drinking water source in order to prevent spread of diseases. Effective policies should be developed by policymakers, safe distance of latrine from drinking water source and media and communication specialists should convey clear messages for everyone, particularly illiterate rural population.

Keywords: WASH, households, facilities, practices.

Introduction:

Water, sanitation and hygiene (WASH) facilities are considered a basic human necessity for survival. About 2.3 billion and 844 million people

around the world lack of access to safe drinking water and sanitation facilities respectively causing 8.42 lacs deaths every year, which is clearly a major public health concern.¹ According to United

Nations Children's Fund (UNICEF) worldwide 2.2 billion people still lack access to safe drinking water, safe sanitation and hand washing facilities with soap.² Without these basic needs, the health condition of millions of people, especially children and women are at risk. The consequence of unsafe water, sanitation and hygiene (WASH) on children can be deadly. In areas of conflicts, children are nearly 20 times more likely to die from diarrheal diseases than from the conflict itself.³ History States there are about seven cholera pandemics that have occurred in the past 200 years, with the first pandemic originating in 1817 in India.⁴ Sanitation coverage in sub-saharan region, Africa and South Asia is lower than the rest of the world. A recent study found that only 19% of people worldwide wash their hands after potential contact with excreta.⁵ On the other hand, poor household water, sanitation and hygiene (WASH) conditions are associated with an increased risk of morbidity and mortality. World Health Organization (WHO) data indicate that globally an estimated 8.29 lacs deaths and 49.8 million disability-adjusted life years (DALY) could be attributed to unsafe WASH practices.⁶ Bangladesh is also vulnerable in this regard. Recently World Bank research also shows that coverage of improved water and sanitation infrastructure is increasing in our country. Bangladesh has made a significant progress in improved water supply with 97.5% of household now.⁵ The accessibility of improved sanitary latrines approximately 86% of households and hand washing facilities within 30 feet of the toilet are another remarkable success in WASH sector in Bangladesh⁵. Despite the significant downfall in open defecation, unsafe sanitation and poor hygiene behaviors persist in many parts of the country. With a view to transforming the world, United Nations (UN) have set 17 Sustainable Development Goals (MDGs) and 169 targets addressing social, economical and environmental aspects of development. Goal 6 aims to "Ensure availability and sustainable management of water and sanitation for all" and includes global targets for drinking water, sanitation and hygiene by the year of 2030. Although United Nations member states are expected to set their own targets, according to UN, targets should be guided by global level of ambition but taking into account national circumstances². Now, WHO works

toward this goal by ensuring WASH facilities and practices in almost all countries.^{6,7} And also UNICEF works in this background worldwide under WASH programs campaigning a motive, "safe water, toilets and good hygiene keep children alive and healthy".³ For this reason, this survey was conducted in selected villages of Taragonj Upazilla in the Rangpur district which has a high population density. It is a great challenge for the authority to ensure the basic WASH facilities and monitor the practices of WASH in this large and dense population. The purpose of this study was to access WASH facilities and practices in those villages.

Method:

This Cross-sectional type of descriptive study was carried out in selected villages of Taragonj Upazilla, Rangpur from 1st October 2022 to 31st October 2022. Amongst the five unions of Taragonj Upazilla, two unions (Alampur and Ikarchali) were selected conveniently. Six villages from these two unions (Alampur Dorjipara, Ghonirampur, Myananagar, Paikpara, Majhapara and Ikarchali) were conveniently selected for data collection. Total 341 adult (>18 years) household members were interviewed and WASH facilities of these households were observed. Adult participants who were willing to answer and show their facilities to the data collectors and give their verbal consents for this purpose were considered as eligible respondents. During the study, proper authorities were informed and no harm to man and animal was done. Data were collected through face-to-face interview with the respondents with a pre tested semi-structured questionnaire and observation of the facilities and practices with observation check list. Households collected water from an improved source and did safe water treatment were considered as in good practices for drinking water. But water collected from an unimproved source and/or did unsafe treatment was considered as poor practices. Good sanitation practices were defined as household who used improved sanitation facility, didn't share their facility with others and safely disposed children stool. Respondents who washed their hands with soap and water before meal and after defecation and showed their soap and water to the observer were considered as in good hygiene practices. Improved or unimproved water sources and sanitation facilities, ideal situation and appropriate

items for hand washing were observed by the data collector. Improved or unimproved source of facilities were defined according to "Core questions on water, sanitation and hygiene for household surveys" by WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene. Collected data were checked and entered by SPSS software after processing. They were analyzed according to objectives and summarized using mean, frequency and standard deviations.

Result:

In the study, majority (62.5%) of respondents were the age group of 30-60 years with an average 38.16(+/-14.03) years. Respondents of this study were female predominant (74%). Average monthly family income was BDT 13024.93 (+/-9273.63) (Table-I)

Table-I: Socio-demographic characteristics of the respondents (n=341)

Attributes	Frequency (%)
Age Group (Years)	
18-30	98(28.7)
30-60	213(62.5)
>60	30(8.8)
Mean±SD=38.16±14.03 Years	
Minimum Age =18 Years	
Maximum Age =90 Years	
Sex	
Female	252(74)
Male	89(26)
Monthly Income (Taka)	
<10000	117(34.3)
10000-19999	160(46.9)
≥20000	64(18.8)
Mean±SD= 13024.93 (±9273.63) Tk.	
Minimum income = 3000 Taka	
Maximum income =60000 Taka	

Table-II showed the distribution of the respondents by drinking water facilities. Every household were using improved source of drinking water. About 97.9% respondents having piped water (Tube

well, piped from underground) and 5% having protected dug well as a source of drinking water though only 4.7% safely treated (Boil, add bleach or chlorine, water filter) this drinking water. Only 17.9% households drinking water source were found more than 50 feet from the latrine on observation. About 70.7% respondents kept their drinking water storage container over shelf/table, covered it with lid (65.0%) and 90.4% containers were found clean during observation.

Table-II: Distribution of the respondents by drinking water facilities and practices (n=341)

Attributes	Frequency (%)
Sources of water(n=341)*	
Piped water	334(97.9)
Protected Dug well	17(5.0)
Distance of latrine from drinking water source (n=341)	
<50 feet	280(82.1)
≥50 feet	61(17.9)
Drinking water treatment Methods (n=341)	
Safely treated	16(4.7)
Not safely treated	325(95.3)
Site of drinking water storage container (n=334)	
On shelf/Table	236(70.7)
On floor	98(29.3)
Condition of drinking water storage container(n=334)	
With lid	217(65.0)
Without lid	117(35.0)
Cleanliness of drinking water storage container (n=334)	
Dirty	32(9.6)
Clean	302(90.4)

*Multiple responses

Regarding sanitation facilities and practices, about 95.6% respondents use improved toilet facility (flush sanitary latrine or dry pit latrine with slab) and 80.6% of them do not share it with anyone other than family members and 90.3% respondents safely disposed children's stool rinsed into latrine, drain or buried. On observation of sanitation facilities, about 45.7% have it in their own dwelling, having water storage facility near latrine (63.2%), hand washing facility near latrine (64.4%) and soap/detergent availability near latrine 59.9%. (Table-III)

Table-III: Distribution of the respondents by sanitation facilities and practices (n=341)

Attributes	Frequency (%)
Type of toilet facility (n=341)	
Improved	326(95.6%)
Unimproved	15(4.4%)
Site of latrine (n=341)	
In own dwelling	156(45.7%)
Outside dwelling	185(54.3%)
Toilet share with others (n=341)	
Yes	66(19.4%)
No	275(80.6%)
Safe disposal of children's stool (n=341)	
Safely disposed	318(90.3%)
Not safely disposed	23(9.7%)
Water storage facility near latrine (n=334)	
Have	211(63.2%)
Do not have	123 (36.8%)
Hand washing facility near latrine (n=334)	
Have	215(64.4%)
Do not have	119(35.6%)
Presence of soap/detergent near latrine (n=334)	
Have	200(59.9)
Do not have	134(40.1)

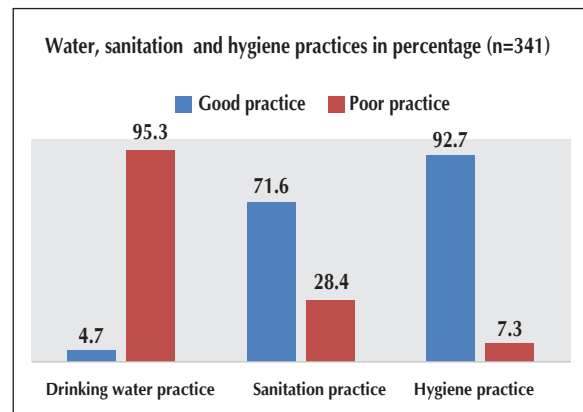
Table-IV showed the hygiene facilities and practices of the respondents. On observation water was available at the site of hand washing in 97.7% households and soap/detergent was available at hand washing site in 83.3%. Regarding hand washing practices with soap 84.8% respondents said that they wash their hands before meal and 98.2% said they washed it after defecation.

Table-IV: Distribution of the respondents by hygiene facilities and practices (n=341)

Attributes	Frequency (%)
Water availability at site of hand washing (n=341)	
Available	333(97.7)
Not available	8(2.3)
Soap/Detergent availability at site of hand washing (n=341)	
Available	284(83.3)
Not available	57(16.7)
Situation when use soap for hand washing*	
Before meal	289(84.8%)
After defecation	335(98.2%)
Before cooking	224(65.7%)
During bathing	314(92.1%)
Before feeding child	209(61.3%)
Washing cloths	298(87.4%)
After cleaning children feces	248(72.7%)
Washing hands of their children	174(51.0%)

*Multiple responses

Figure-1 showed respondents with their water, sanitation and hygiene practices. In this study, regarding drinking water, 95.3% population were in poor practices and 71.6% respondents were in good practices regarding sanitation. Majority (92.7%) respondents practiced good hand hygiene and only 7.3% respondents were in poor practices regarding hand hygiene.

**Figure-1: Drinking water, sanitation and hygiene practices of the respondents [n=341]**

Discussion:

In order to attain universal and equitable access to safe and affordable drinking water, sanitation and hygiene for all, the Sustainable Development Goals (SDGs) clearly recognize the need to promote WASH facilities and practices in household settings.² However, this study aimed to assess household water, sanitation and hygiene facilities and practices in selected villages of Taragonj Upazilla, Rangpur. The respondents of this study were female predominant. Male: female ratio was 1:3. Almost two-third of the respondents were within the age group 30-60 years (62.5%) with an average age of the respondent was 38.16(+/-14.03) years. The average monthly family income of the respondents was BDT 13024.93(+/-9273.63). Access to safe water supply is vital to health and survival.¹ In this study area, all households were using improved source of water for both drinking and other domestic purposes which is consistent with the latest national hygiene survey of Bangladesh in 2018,⁸ households of St Martin's Island⁵ and urban slums in India⁶ though only 17.9% households it was found 50 feet or more from latrine. Among them 95.8% respondents were using tube well, 4.2% respondents were using water piped from underground and 5% respondents were using protected dug well as a source of drinking water. Household water treatment practices can improve

dramatically drinking water quality and prevent diseases.⁹ In the study area households' level of water treatment practices was negligible as only 4.7% households safely treated water for drinking particularly using efficient methods like boiling, water filter or add bleach or chlorine. This was similar to the findings of studies done by Sridhar et al,¹ Kanungo et al⁶ and Bitew et al,¹⁰ but lower in comparison to 2018 national hygiene survey of Bangladesh⁸. The study population lacks knowledge of quality drinking water as many responded thoughts that quality water means visually clear water. This understanding affects their home water treatment practices. Contrarily similar study showed that water consumers were knowledgeable about safe drinking water.¹¹ Appropriate use of storage vessels and handling attitudes are vital to maintain quality drinking water and preventing waterborne diseases.¹ In the study area, About 70.7% respondents kept their drinking water storage container over shelf/table, covered it with lid (65.0%) and 90.4% containers were found clean during observation. this was similar to findings observed by national hygiene survey of Bangladesh,⁸ Ssemugabo et al¹¹ and Reddy et al.¹² Regarding toilet facility used, 95.6% households use an improved facility like latrine flush to septic tank or pit and dry pit latrine with slab. It was higher than the countryside households' access to improved latrine which was 86.0% described in 2018 national hygiene survey.⁸ This study revealed that among all the respondents, 2.1% respondents having no toilet facility at all which is quite similar with nationwide data (1.7%).⁸ Nearly 19.4% respondents shared their toilet facility with people other than household members. On observation of sanitation facilities, about 45.7% have it in their own dwelling, having water storage facility near latrine (63.2%), hand washing facility near latrine (64.4%) and soap/detergent availability near latrine 59.9%. These findings were quite similar reported by UNICEF/JMP² and the national hygiene survey of Bangladesh⁸ and higher than reported by Jubayer et al.⁵ Concerning safety disposal of children's stool, 90.3% households safely disposed their children's stool by rinsed into latrine, drain or buried; it was similar to the findings of Sridhar et al.¹ Regarding hand washing practices with soap 84.8% respondents said that they wash their hands before meal and 98.2% said they washed it after defecation. During observation of the site for hand washing, water supply and soap or detergent availability were found in 97.7% and 83.3% households respectively. Households' good practices for

drinking water, sanitation and hygiene were found 4.7%, 71.6% and 92.7% respectively.

Conclusion

Though the study revealed every household had improved source of water both for drinking and other domestic use and more than four-fifth of the households were used to store water for drinking safely, but a negligible portion of them (4.7%) were in safe water treatment practices which might be due to lack of education and awareness on water safety. This study also revealed almost all the household having improved toilet facility but still there was a few percent (2.1%) households who did not have toilet facility and about one-fifth of the households shared their toilet with other households. Almost every household (92.7%) had good hygiene practices especially hand washing before meal (84.8%) and after defecation (98.2%) with soap, detergent or hand wash. These findings suggestive of need to come up with strategies of health education and promotion to ensure households understand the importance of safe treatment of drinking water, safe disposal of child's stool, safe distance of latrine from drinking water source in order to prevent spread of diseases.

References:

1. Sridhar MKC, Okareh OT, Mustapha M. Assessment of Knowledge, Attitudes, and Practices on Water, Sanitation, and Hygiene in Some Selected LGAs in Kaduna State, Northwestern Nigeria. *J Environ Public Health*. 2020 Aug 31;2020:6532512. doi: 10.1155/2020/6532512.
2. World Health Organization & United Nations Children's Fund (UNICEF). Core questions on drinking water, sanitation and hygiene for household surveys: 2018 update. United Nations Children's Fund (UNICEF) and World Health Organization, New York. 2018. <https://washdata.org/sites/default/files/documents/reports/2019-03/JMP-2018-core-questions-for-household-surveys.pdf> [Accessed 18 th October 2022]
3. UNICEF. Water, Sanitation and Hygiene (WASH) Safe water, toilets and good hygiene keep children alive and healthy.2022. <https://www.unicef.org/wash>. [Accessed 18 th October 2022]
4. European Centre for Disease Prevention and Control. Cholera worldwide overview: Monthly update.2022. <https://www.ecdc.europa.eu/en/all-topics-z/cholera/>

- surveillance-and-disease-data/cholera-monthly. [Accessed 18 th October 2022]
5. Jubayer A, Hafizul Islam M, Nowar A, Islam S. Exploring Household Water, Sanitation, and Hygiene and Acute Diarrhea among Children in St. Martin's Island, Bangladesh: A Cross-Sectional Study. *Am J Trop Med Hyg.* 2022 Jun 27;107(2):441–448. doi: 10.4269/ajtmh.22-0018.
 6. Kanungo S, Chatterjee P, Saha J, Pan T, Chakrabarty ND, Dutta S. Water, Sanitation, and Hygiene Practices in Urban Slums of Eastern India. *J Infect Dis.* 2021 Nov 23;224(Supple 5):S573-S583. doi: 10.1093/infdis/jiab354.
 7. United Nations. Millennium Declaration identified fundamental values essential to international relations. 2000-2015, Millennium Development Goals.2000. <https://research.un.org/en/docs/dev/2000-2015>. [Accessed 18 th October 2022]
 8. Bangladesh Bureau of Statistics with financial and technical assistance of WaterAid Bangladesh and UNICEF Bangladesh. National Hygiene Survey 2018. http://bbs.portal.gov.bd/sites/default/files/files/bbs.portal.gov.bd/page/b343a8b4_956b_45ca_872f_4cf9b2f1a6e0/2021-02-18-12-34-38806de91fa4_ca8_d9e70db96ecff_4427.pdf [Accessed 18 th October 2022]
 9. UNICEF. Water Sanitation and Hygiene (WASH) in School. United Nations International Children's Emergency Fund, NY, USA.2018. <https://www.unicef.org/wash> [Accessed 18 th October 2022]
 10. Bitew BD, Gete YK, Biks GA, Adafrie TT. Knowledge, Attitude, and Practice of Mothers/Caregivers on Household Water Treatment Methods in Northwest Ethiopia: A Community-Based Cross-Sectional Study. *Am J Trop Med Hyg.* 2017 Sep;97(3):914-922. doi: 10.4269/ajtmh.16-0860.
 11. Ssemugabo C, Wafula ST, Ndejjo R, Oporia F, Osuret J, Musoke D, et al. Knowledge and practices of households on safe water chain maintenance in a slum community in Kampala City, Uganda. *Environ Health Prev Med.* 2019 Jun 14;24(1):45. doi: 10.1186/s12199-019-0799-3.
 12. Reddy B V, Kusuma YS, Pandav CS, Goswami AK, Krishnan A. Water and Sanitation Hygiene Practices for Under-Five Children among Households of Sugali Tribe of Chittoor District, Andhra Pradesh, India. *J Environ Public Health.* 2017;2017:7517414. doi: 10.1155/2017/7517414.