

Study on the Awareness and the Availability of Safe Drinking Water and its Associated Morbidity in the Guwahati City

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Abstract: *Study on the awareness and the availability of safe drinking water and its associated morbidity in the Guwahati city Jhankar Hazarika 1, Jutika Ojah 2* Assistant Professor, Department of Community Medicine, Gauhati Medical College and Hospital, Guwahati, Assam 2 Professor, Department of Community Medicine, Gauhati Medical College and Hospital, Guwahati, Assam Correspondence Address- Jhankar Hazarika Assistant Professor, Department of Community Medicine, Gauhati Medical College and Hospital, Guwahati-781032, Assam Introduction Water is the essence of life. Excluding fat, water composes approximately 70 % of the human body by mass. It is a crucial component of metabolic processes and serves as a solvent of many bodily solute. The UN considers universal access to clean water a basic human right and an essential step towards improving living standards worldwide. Methods The study was conducted in the field practicing area of Bhangagarh, Guwahati of the Department of Community Medicine, Gauhati Medical College. The study population comprises of families living in the mentioned areas. House to house visits were conducted in 120 nos of households. Results In the study it was found that the source of water in majority of the houses i.e. 56.67 % is piped water, 10 % have tube well, 29.17 % have well, 3.33 % have pond while source in rest 0.83 % is stream. Out of 72 persons suffering from water borne diseases majority of them 33 (45.83 %) suffered from gastrointestinal diseases, 23 (31.94 %) suffered from diarrhea, 9 (12.5 %) suffered from jaundice, 3 (4.17 %) suffered from typhoid and the rest 4 (5.56 %) suffered from worm infestation, leptospirosis etc Among 69 families suffering from water borne diseases 22 (31.88 %) prefer treatment at Government centers, 22 (31.88 %) prefer self medication, 16 (23.19 %) prefer home remedies, 7 (10.15 %) prefer traditional treatment and 2 (2.90 %) prefer treatment at private health care provider.

Keywords: Water treatment, Household-diseases

1. Introduction

Water is the essence of life. Excluding fat, water composes approximately 70% of the human body by mass. It is a crucial component of metabolic processes and serves as a solvent of many bodily solute. The UN considers universal access to clean water a basic human right and an essential step towards improving living standards worldwide. Polluted water is devastating not only to the environment but also to human health. Man's health may be affected by the ingestion of contaminated water either directly or through food and by the use of contaminated water for purpose of personal hygiene and recreation

Globally, about 4 billion cases of diarrhoea occur and about 1.8 million people die per year; the vast majority being children under 5 years of age, of which 88% is attributable to unsafe water. WHO estimates that 94% of diarrhoeal cases are preventable through interventions to increase the availability of clean water, and to improve sanitation and hygiene.^[1] Progress towards these interventions is indicated by the proportion of households reporting the use of improved water supplies, such as piped household connections or protected wells.^[2]

Approximately 88% of diarrheal diseases are attributed to unsafe water supply, inadequate sanitation and hygiene (WHO, 2004).^[3] The proportion of population in rural areas with access to safe drinking water and sanitary latrines has a direct impact on the health of the masses. Water sources and sanitation facilities have an important influence on the

health of household members, especially children (NFHS-III, 2005-06).^[4]

2. Methods

The study was conducted in the field practicing area of Bhangagarh of the Department of Community Medicine. The study population comprises of families living in the mentioned areas and the household visits were conducted. Our college situated at the Narakasur hilltop, Bhangagarh, Guwahati was taken to be the center point from which 4 directions in the East, West, North and South were taken and from each direction 30 households were taken for the study. House to house visits were conducted. Prior to interview, the respondents were briefed about the purpose of the study to get their full co-operation during the process. The interviewer proceeded with the interview as per schedule, general information followed by specific information. Observations were made regarding the distance of water source from latrine, condition of wells (if present), drainage system, presence of livestock, presence of stagnant water and environmental condition around the household. During the study, water samples were collected from 21 nos of Household and water analysis was conducted in the research laboratory in the Department of community medicine as well in the state research laboratory, Public Health Engineering Department, Guwahati. The study was conducted by 14 nos of 6th semester M.B.B.S. students during the period June- September 2019. Pre tested and pre designed schedule containing both open ended and close ended questions. Data obtained were analyzed manually and

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are represented here through tables, bar diagrams and pie charts

3. Results

The table no 1 shows the socio demographic profile of the respondents. Table 1 shows that in the study area, majority of the people 91.67% are hindus, 4.17% were muslims, 2.5% were Sikhs and 1.66% belong to other religion as Christian. Out of 120 households 97 (80.83%) were nuclear families and the rest 23 (19.17%) were joint.

Based on the material used for the construction of walls, roof and floor a house was classified as Kutchra if it is made from mud, thatch or other low quality material, pucca if it was made up of high quality material throughout as cement, concrete etc. The Households were classified as semi pucca if it was build partly from low quality and partly from high quality material. About households 70 (58.33%) houses are pucca, 35 (29.17%) houses are kutchra and 15 (12.5%) houses are semi-pucca.

Out of 120 respondents 15 (12.5%) belong to upper, 68 (56.67%) belong to upper middle, 25 (20.83%) belong to lower middle, 10 (8.33%) belong to upper lower and 2 (1.67%) belong to lower socioeconomic class as per Kuppaswamy's scale for socioeconomic status.

Table 1

Socio demographic profile of respondents		
Variables	N	%
Religion		
Hindu	110	91.7
Muslim	5	4.17
Sikh	3	2.50
Others	2	1.66
Family		
Nuclear	97	80.83
Joint	23	19.17
Educational status (head of Family)		
Illiterate	11	9.17
Primary school	11	9.17
Middle school	18	15
High school	17	14.16
Matriculate	24	20
HS	21	17.5
Graduate	18	15
Post Graduate	0	0
Socioeconomic status ((Kuppaswamy's scale)		
Upper (I)	15	12.5
Upper-middle (II)	68	56.67
Lower-middle (III)	25	20.83
Upper-lower (IV)	10	8.33
Lower (V)	2	1.67
Types of houses		
Pucca	70	58.33
Kutchra	35	29.17
Semi-pucca	15	12.5

Head of the households of 120 families 11 (9.17%) are illiterate, 11 (9.17%) have primary school education, 18 (15%) have middle school education, 17 (14.16%) have high school education, 24 (20%) are matriculate, 21 (17.5%) have completed HS and 18 (15%) are graduate

Table 2 Out of 120 households majority of the families i.e. 86 (71.67%) uses community water supply while the rest 34 (28.33%) uses household water supply. In the study it was found that the source of water in majority of the houses i.e. 56.67% is piped water, 10% have tube well, 29.17% have well, 3.33% have pond while source in rest 0.83% is stream. 90 (75%) household have a distance of 0 – 0.5 km, 28 (23.33%) have a distance between 0.5 to 1 km while the rest 2 (1.67%) have a distance of more than 1 km from water source. Out of 86 households having community water supply 27 (31.4%) have continuous while the rest 59 (68.6%) have intermittent supply.

Table 2

Distribution of water supply		
Variables	N	%
Types of water supply		
Household	34	28.33
Community	86	71.67
households according to distance from water source		
0 – 0.5 km	90	75
0.5 – 1 km	28	23.33
> 1 km	2	1.67
Household according to type of community supply		
Continuous	27	31.4
Intermittent	59	68.6
households according to source of water supply		
Piped supply	12	10
Tube well	68	56.7
Well	35	29.2
Pond	4	3.3
Others	1	0.8

Most of the families use household latrine for excreta disposal, some use community latrine while small percentage (2.5%) practice open air defecation. Distance of latrine from water source in most of the households is between 10 to 50 ft. However a significant number of households have a distance of less than 10 ft between and water source. A small fraction of families (15.83%) use unsanitary latrine while the rest use sanitary latrine.

Out of 72 persons suffering from water borne diseases majority of them 33 (45.83%) suffered from gastrointestinal diseases, 23 (31.94%) suffered from diarrhea, 9 (12.5%) suffered from jaundice, 3 (4.17%) suffered from typhoid and the rest 4 (5.56%) suffered from worm infestation, leptospirosis etc. Among 69 families suffering from water borne diseases 22 (31.88%) prefer treatment at Government centers, 22 (31.88%) prefer self medication, 16 (23.19%) prefer home remedies, 7 (10.15%) prefer traditional treatment and 2 (2.90%) prefer treatment at private health care provider. Out of 120 households majority i.e. 94 (78.33%) respondents are aware about water borne diseases while the rest 26 (21.67%) respondents are unaware.

4. Laboratory Parameter

Most of the drinking water samples i.e. 70% were free from nitrate and nitrite. 15% samples tested positive for nitrate and 15% for nitrite. 65% samples of drinking water were soft, 20% moderately hard and 15% were very hard. A significant fraction of drinking water 20% also tested positive for harmful levels of bacteria.

5. Discussion

Majority of the households visited drink purified water. Among these, most of the families use filtration as the method of purification. Candle filter is mostly used and cleaned in 2 – 3 months. Other methods like boiling, electrical filtration are also used. Out of the 120 households majority use filtered water in family functions. Others use normal water, packaged water and boiled water.

All the families follow hand washing practice before eating, after defecation and after cleaning fecal matter of children with soap. When questioned majority of the respondents were aware about water borne diseases and storage of drinking water. Mostly plastic bottles and buckets are used for water storage. Among others mugs and pots are used. Water is mostly stored for duration of less than 24 hours. However, a significant number (33.67%) of people are not aware about usage of clean water and separate utensils for children under 5 years of age.

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A significant number of people suffered from water borne diseases in the area under survey. Among them gastrointestinal diseases is most prevalent. Diarrhea and jaundice are also common. Few cases of typhoid, roundworm and hookworm infestation, leptospirosis were also encountered. People in the area mostly prefer Government health services in GMCH. A significant fraction also prefers self medication home remedy and traditional methods of treatment. A small percentage visit private health care facilities.

In a nutshell, this study within its limited scopes shows the prevalence of water borne diseases in the community and calls the need for proper education about safe drinking water.

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