IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT)
e-ISSN: 2319-2402,p- ISSN: 2319-2399.Volume 13, Issue 12 Ver. III (December. 2019), PP 17-24
www.iosrjournals.org

Health Vulnerabilities among the Disaster Affected Children in Coastal Area of Bangladesh

Abdur Razzak Moral[1&2], Dr. Quazi Hamidul Bari[1], Dr. Md. Abdul Jabbar[2], S.M. Tariqul Islam[1], Md. Hasibul Hasan[1]

PGD Student, Institute of Disaster Management, Khulna University of Engineering and Technology, Kuhlna-9203. Former, Sociology Discipline, Khulna University, Khulna-9208
Professor and Director, Institute of Disaster Management, Khulna University of Engineering and Technology, Kuhlna-9203
Professor, Sociology Discipline, Khulna University, Khulna-9208
Assistant Professor, Institute of Disaster Management, Khulna University of Engineering and Technology, Kuhlna-9203
Assistant Professor, Institute of Disaster Management, Khulna University of Engineering and Technology, Kuhlna-9203

Abstract: *The goal of the study was to investigate the health vulnerabilities among the disaster affected children in coastal area of Bangladesh. Bangladesh is one of the disaster prone areas in the world. Disaster occurs here almost each and every year. As a result, the people of our country especially the children face different problems due to natural disaster. Health problem is the most of them. To achieve the objectives, 125 children (90 boys and 35 girls) were selected by random sampling, from two villages naming Kalabogi and Sarbatkhali under Dacope upazila in Khulna district from January to June 2016. It was an explanatory study by which the face to face interview administered with an interview schedule on the children below the age of 18 years. The findings of the study described that most of the children of the study area were very much physically vulnerable which lead them with bad health condition. Most of the children (82.4%) used hanging latrine and a significant portion of the children (37.6%) washed their hands after toileting by the ash. So, it is high time GOs and NGOs initiated programs on water supply, sanitation, hygienic practices, and proper medical facilities in this area for their better condition.*

Key Words: *Bangladesh, Children, Disaster, Health Vulnerability, Investigate.*

Date of Submission: 18-12-2019 Date of Acceptance: 01-01-2020

I. Introduction

Bangladesh is a small country of South Asia. The land area of our country is 147, 570 square kilometers. Our country is one of the largest deltas in the world. It is one of the disaster prone countries in the world. Disaster occurs here almost each and every year. As a result, the people of our country especially the children face different problems due to natural disaster. Health problem is most of them. Actually, Bangladesh is formed by a gigantic network of the dividers of the rivers Padma, Meghna, Jamuna Ganges, Brahmaputra, and there are many big and major rivers and their branches and distributaries (MoEF, 2005).Bangladesh is one of the most populous countries in the world. It is the most vulnerable to several natural disasters i.e. tropical cyclone, tidal bore, flood, tornado, and river bank erosion, earthquake etc. and every year these natural calamities distressed people's lives in some part of the country. These extreme natural disasters adversely affect the whole environment, including human beings, their shelters, or the resources essential for their livelihoods (Banglapedia, 2016). The vulnerability to natural disasters is considered to have massive and disastrous consequences for Bangladesh results one of the most susceptible countries of the world (ADB, 2004). The people of these areas received the highest amount of sufferings from drinking water shortage and destruction of sanitation facilities. Bangladesh is already vulnerable to outbreaks of infectious, water borne and other types of diseases (WHO, 2016). As a result, diseases like diarrhea, dysentery, dengue, asthma and skin diseases etc. are also increasing in Bangladesh. These kinds of diseases are mostly responsible for the health vulnerability of the children. Changes in temperature and rainfall may also affect the distribution of disease vectors, e.g. those of malaria and dengue, and the incidence of diarrhea diseases (Ahern et al., 2005). In coastal area of Bangladesh, the overall environment is very problematic and too much challenging. Here the children face many problems regarding their health status. In this region, really the health facilities for the children are not available. Due to the lack of proper health facilities, they are not capable to cope with this environment. So their health condition is become worsening day by day (Kahn, 2005).

Bangladesh is one of the disaster affected areas all over the world. Bangladesh faces various types of natural disasters in every year. These disasters have a negative impact on health of the inhabitants mostly women and children are victim of health vulnerability during and after disasters. As flood, cyclone, tidal surge visit the south- east region of Bangladesh every year, the people generally suffer from diarrhea, dysentery, cold fever and sever cold most time of the year. Moreover, lack of pure drinking water and water for household usage has becoming acute in this region. Because of disaster in every year, water pollution, environment pollution is very much frequent in these areas. Health is wealth for a human being but the children of coastal region of our country suffer from health vulnerability. As a result, they are deprived of proper standard of living and cannot fulfill the minimum subsistence level because of health vulnerability. So it is very much essential to find out the causes of disaster in this region; sources of water both for drinking and household usage before, during and after disasters respectively, which diseases are very much frequent in these areas before, during and after disasters respectively; the ways of sanitation; the sources of medical care; health problem of the children, factor affecting health problem and so on. With a view to know the overall health situation of children during disaster were very much important. For these reasons, the study on this topic is very much essential.

This article structurally consists of five sections. After the introduction, the second section provides an overview of the method and materials. Third section depicts the empirical result about the impact of health vulnerabilities among the disaster affected children in coastal area of Bangladesh. Afterwards, fourth section looks at discussion where meaning of the data is presented. The final section sums up the identified what types of disaster children are mostly affected, which are more acute, nature of treatment in coastal area in Bangladesh and discuss the implications, recommendations, shortcomings and future agenda.

II. Method and Materials

This study is explanatory in nature that explains the health vulnerability of the disaster affected children in coastal region of Bangladesh. This study tried to explain the causes of health vulnerability of the children in coastal area and their sufferings related health. It also tried to make a relationship between natural disasters affected in the study area and the health problems of the children in that area.The study was conducted through survey method because it would connect the information of more variables to answer research questions and to make generalization, and the characteristic of data was quantitative. Data were collected from the respondents by face to face interaction. The study area was selected purposively on the basis of objectives of the study. Dacopeupazila in Khulna district will be selected purposively, because it is one of the most disaster prone areas of Bangladesh. From the study area, two villages naming *Kalabogi and Sarbatkhali*ofDacopeupazila in Khulna district were selected purposively.

2.1 Instrument and Procedure

An interview schedule as an instrument was developed to collected data from 125 samples from thetwo villages naming *Kalabogi and Sarbatkhali.*Apilot survey was conducted to check the valid scales of measurements and scrutiny of irrelevant questions before making final interview schedule.The Data were collected from field through interview schedule thatcontained both open ended and close ended items and finally the data were processed and analyzed according to the objective of the study. The children those who under the age of 18 from two distinct villages (*Kalabogi and Sarbatkhali)* were enlisted from the Union Parishad Office whichare the population of the study. Data were collected by four trained interviewers. Oral consensus of informants was ensured maintain ethical issue before gathering information. Few times were spent to build up rapport with informants and then the interview started.

2.3 Statistical Analysis

Data wereanalyzed by using SPSS 20 program and was computerized by MS word 2007. Correlation between various variables was presented through Pearson's test. Results on the variables were presented with cross tables and figures. The statistical analysis was conducted at 95% confidence level. P value less than 0.05 was considered statistically significant. Besides, some relevant secondary information was used for this study as well.

III. Result and Discussion

3.1 Socio-Demographic Information of the Respondents

Table A. 1 represents the overall socio-demographic information of the respondents of the study area.Data, in the Table A. 1, show that highest 46.4 percent of the respondents were in the age group 12 to 14 and 36.8 percent of the respondent which age group 15 to 17 was with indicates the average age of the respondents was 13.42 years. Education is one of the major factors of the people by which they can be able to adjust themselves in the different conditions. Data, in the table represent that most of the respondents have either secondary (51.2%) or primary education (47.2%) and only 1.6 percent of the respondents were the higher

secondary students. None of the respondents were non-literate. Here the average year of schooling of the respondents were 5.90. Data in the table give the information about the religion of the respondents. Table 5 represents that most of the head of the household were the fathers. And another (3.4% and 3.0%) of the respondents were mothers, and brothers respectively. Findings of the table show that most of the occupations of the head of the household were either labor (37.6%) or fisherman (35.2%). And the others (98.8%, 9.4%, 4.8% and 3.2%) occupation of the head of the household were shopkeeper, wood collector, business and the boatman respectively. It is clear that the people in Bangladesh are differentiated on the basis of the occupation.Monthly household incomes of the head of household play an essential role on basis of the different means of the children health conditions. Table reveals that most of the monthly income of the household head (43.2%) is 5001 to 7000. Following 3.8 percent reported having income level less than BDT 5000 and others 18.4 percent having income level is less than BDT 7001. Here, the average monthly income was BDT 5872.Data in the table provide the information about the size of the families on the basis of the numbers of the family members. Data, presented in the table that nearly (51.2%) of the families had 3 members to 4 members. The average of the families (5.18%) had 5 members or more than 5 members. In the table 1, focuses that most of the income of the household (44.8%) were BDT 4000 to BDT 6000. A significant portion of them (34.4%) having income BDT 6001 to BDT 8000. And the others 20.8 percent of them had incomes BDT 8001 to BDT 11000. The average incomes of the household were BDT 6864. The table also explains the household savings. Here it is clear that most of the household (60.0%) had not any savings. Here only a few portion of them (33.6%) having not less than BDT 1000 and 6.4 percent of them having not more than BDT 2000.

3.2 Information about Environmental Situation of the Household

Table A. 2 represents the information about environmental situation of the household of the study area. Data in the table provide the information about the type of the houses. Table reveals that most of the houses (83.2%) are semi-pacca. And a significant portion of them (16.8%) had kacha houses. Type of house varies from study area on the basis of the socio-economic conditions of the household head. From the table, we can know that a large number of the houses (67.2%) were made by straw/chone on its sailing. And a major portion of them (26.4%) having tin on their houses. But only a few portions of them (6.4%) had polythene in the construction material of the house on the ceiling. Water is one of the most essential needs to lead the daily affairs such as bathing, washing, drinking and cleaning. From the table, we can know that a large number of the household (74.4%) used their primary water from the pond. And the others household (11.2%, 8.0%, 3.2% and 3.2%) collected their primary water from rain-water, tube well, river and supply water respectively. Besides these they collect water from secondary sources. Data, in the table explain that most of the qualities of the drinking water (97.1%) were not safe. And a significant portion of them had safe drinking water. But we know water is one of the most essential needs to lead the daily affairs such as bathing, washing, drinking and cleaning. But it is sorrowful that, the situation of pure drinking water in coastal area is not available. The percentage is 22.4 and 19.2 percent of the household drink iron and saline water. But only a few number of the household (3.2%) drank tested water.Sanitation is one of the most essential issues that are largely related to the health directly or indirectly. To lead a better life, better sanitation is a must. From the table, it is clear that most of the household (82.4%) had the hanging latrine and a significant portion of the household (11.2%) had the open pit latrine system. But only a few number of the household (6.4%) had the sanitary latrines.Data, of the table, represent that most of the respondents (37.6%) washed their hands after toileting by the ash. Only a few number of the respondents (1.6%) used soap after coming from the latrine. And the other respondents (32.4% and 28.4%) washed their hands after coming from latrine by the mud and some of them did not do anything. Table also gives the information about the main source of light. Here most of the households (80.8%) used kerosene as the main source of light. And the other households (19.2%) used solar power as the main source of light.

3.3 Health Problem of the Children

Table A. 3 reveals the multiple responses regarding suffering from health problem during hazard among the 125 respondents who had different experiences about hazards related diseases, especially in coastal area of Bangladesh. Data, of the table 3, represent that most of the children (20.83%) suffered from diarrhea. 9.05 percent of them suffered from dysentery. A significant portion of them (20.28%) suffered from cold fever/cough/severe cold. A few portion of them (4.89%) suffered from skin/eye related illness. And the other (9.96%, 7.06%, 12.86%, 2.89%, 9.60% and 2.71%) of the children suffered from skin disease, malaria, cholera, asthma, typhoid and jaundice respectively.From the table it is clear that most of the respondents (45.6%) took the allopathic treatment when they attacked by above mentioned diseases. And the other respondents (28.8%, 24.4% and 1.6%) took the kabiraji treatment, self-treatment and the homeopathic treatment respectively.But distance is one of the major barriers of health related issues in coastal area of Bangladesh. The table reveals that most of the respondents (48.8%) covered the distances 5 km to 7 km to go to the nearest health complex. But only a few amount of respondents (12.8%) had to cover 1 km to 2 km to go the nearest health complex. The

table describe that most of the respondents (83.2%) had not enough public transport facilities to travel the health complex. But only a few amount of respondents (16.8%) had enough public transport facilities to travel the health complex. According to the table, most of the respondents (31.2%) had to travel to get treatment by boat. Because in coastal area there have exist many rivers. And the others respondents (28.8%, 24.0% and 16.0%) had to travel to get treatment by walking, by van and by engine van respectively. It further clear that in coastal area the condition of the road is very poor as a result any good transports aren't available. Money is definitely one of the major needs of health related issues. It also needs on the basis of transportation. The findings in the table A. 3 show that most of the respondents (31.2%) needed at least or more than BDT 50 to get medical facilities. A significant portion of them (28.8%) did not need any cost to go the health complex. But only a few number of the respondents (24.0%) needed minimum or more than BDT 50. The need of the average transport cost to go the health complex is BDT 34.38 approximately.

3.4 Factor Affecting Health Problem during Disaster

Table A. 4 reveals the multiple responses regarding possible causes of diseases of children during hazard among the 125 respondents especially in coastal area of Bangladesh. The table gives the information about the possible causes of diseases of the children. The findings in the table shows that most of the diseases (25.3%) occurred due to variation in rainfall. A significant portion of the diseases (24.46%) occurred due to water pollution. And the other (13.82%, 21.91% and 2.97%) of the diseases occurred due to likely the causes of variation in temperature, unhygienic sanitation and possible natural disaster respectively.Bathing place is one of the major barriers of health related issues in coastal area of Bangladesh. During the disaster, it destroyed largely and the children face the challenges of it. Data, in the table, describe that most of the respondents (54.2%) bathing place during the disasters were the river. And a significant portion of them (42.6%) took their bath in the pond during the disasters. But only a few numbers of the respondents (3.2%) took their bath in the tube-well during the disasters. Data in the table, present that most of the destruction of their sanitation system occurred in their families during the natural disaster. This percentage is 84.0. But only a few number of the respondents (16.0%) families faced no sanitation problem in their families. The findings in the table show that most of the respondents (44.8%) families' toilet was beside the river. And the other (21.6%, 14.4%, 14.2% and 4.0%) respondents and their family's member used toilet in an open place, in neighbor's toilet, temporary toilet made by GO's and NGO's and some of them are in the bush respectively. Bangladesh is a small country of South Asia. Our country is one of the largest deltas in the world. It is one of the disaster prone countries in the world. Disaster occurs here almost each and every year. As a result, the people of our country especially the children face different problems due to natural disaster. Health problem is most of them. Data in the table give the information about the vulnerability of health due to natural disaster. Here most of the children (54.4%) faced the challenges of high natural disaster. A significant portion of them (42.4%) faced the challenges of medium natural disaster. But only a few portion of them (3.2%) faced the challenges of low natural disaster. The table gives the information about the level of diseases during the disasters. According to the table, most of the times (69.6%) due to the natural disaster, different diseases increased. And the others (16.0% and 14.4%) disasters are unchanged and undecided respectively.

3.5 Association between Total Household Income and Nature of Treatment

The relationship between natures of treatment with total household income is examined in the tableA. 5. At the same time nature of treatment depends on total household income of the respondents. The findings here visibly prove that, nature of treatment of the respondents is a closely associated with their total household income and the differences were statistically significant ($\chi 2= 14.837$; $p< .022$) with the degree of freedom is 6. It is evident from the data, in the table A. 5, nature of treatment ability increases as their household income upholds.

3.6 Association between Total Household Income and Primary Source of Water

The relationship between travelling to get treatment with total household income is described in the tableA. 6. At the same time primary source of water depends on total household income of the respondents. The findings here visibly prove that, primary source of water of the respondents is closely associated with their total household income and the differences were statistically significant ($\chi 2= 21.534$; $p< .006$) with the degree of freedom is 8. It is evident from the data, in the table A. 6, the ability of the access of primary source of water increases as their household income increases.

3.7 Association between Total Household Income and Types of Sanitation Facility

The relationship between the types of sanitation facility with total household income is described in the above A. 7. At the same time the types of sanitation facility depends on total household income of the respondents. The findings here visibly prove that, the type of sanitation facility of the respondents is closely

associated with their total household income and the differences were statistically significant ($\chi 2=17.114$; $p< .002$) with the degree of freedom is 4. It is evident from the data, in the table A. 7, the types of sanitation facility increases as their household income increases.

3.8 Association between Total Household Income and Place of Using Toilet

The relationship between the places of using toilet with the total household income is narrated in the tableA. 8. At the same time, the place of using toilet depends on total household income of the respondents. The findings here visibly prove that, the place of using toilet of the respondents is closely associated with their total household income and the differences were statistically significant ($\chi 2=30.787$; $p< .000$) with the degree of freedom is A. 8. It is evident from the data, in the table 8, the places of using toilet facility increases as their household income increases.

IV. Conclusion

Finally it can be told that the health situation of the children in coastal area of Bangladesh is not satisfied at all. It was too much vulnerable. The children in the coastal area are vulnerable to water pollution, variation in temperature, unhygienic sanitation, salinity, cyclone, storm surge, rise in sea level, flood, river erosion, water logging and huge rainfall and so on. There is the close relation among the disaster and the disease. During the disaster, the children suffered from the different diseases such as severe cold, mumps, hepatitis, measles, diarrhea, dysentery, sneezing, dengue, malaria, skin diseases, malnutrition, cholera, coughing, pneumonia, asthma, typhoid, jaundice, and so on. There are many factors behind the increase of the diseases such as improper sanitation, soil pollution, air pollution, water pollution and lack of medical facilities, lack of pure water, lack of food supply and lack of education facilities and so on. The children did not get medical facilities in the study area because of lack of the medical centers, lack of supply of medicine, lack of consciousness among the people, insufficient medical attendants and health workers, problems in transportation of medicine, lack of medical appliances, and so on. The findings from such a study would be valuable for policy and decision making process relating human health and sustainable development. It is time, GOs and NGOs initiated large scale programs on water supply, sanitation, hygienic practices, and proper medical facilities in this area with a view to improving their existing problems.

References

[1]. ADB. (Asian Development Bank).2004. *Bangladesh: 2004 flood, response, damage and recovery needs.* Manila, Philippines

[2]. Ahern, M., Kovats, R. S., Wilkinson, P., Few, R. and Matthies, F. 2005. Global health impacts of floods: epidemiologic evidence. *Epidemiologic Reviews*, 27(1):36–46

[3]. Banglapedia, 2016. *Natural Hazard*. Accessed on July 29, 2016. Retrieved from [http://en.banglapedia.org/index.php?title_Natural_Hazard]

[4]. Kahn, M. 2005. The death toll from natural disasters: the role of income, geography, and institutions. *Review of Economics and Statistics*, 87(2): 271-284

[5]. MoEF (Ministry of Environment and Forest). 2005. National Adaptation Programmed of Action. *Final Report*, UNFCCC

[6]. WHO (World Health Organization). 2016. *Water for Health-Taking Charge*. Accessed on Jul 29, 2016. Retrieved from [http://www.who.int/water_sanitation_health/takingcharge.html]

Appendices

Table A. 1: Socio-Demographic Information of the Respondents

Characteristics/ Variables	Categories	Respondents *(f)* (n=125)	Percentage % (among =100)
Age of the Respondents (in years)	9-11	21	16.8
	12-14	58	46.4
	15-17	46	36.8
	Mean: 13.42 Std. Deviation: 1.972		
Year of schooling of the Respondents (in years)	Primary (i-v)	59	47.2
	Secondary (vi-x)	64	51.2
	Higher Secondary (xi≥)	2	1.6
	Mean: 5.90 Std. Deviation: 2.471		
Head of the Household	Father	117	93.6
	Mother	4	3.4
	Brother	4	3.0
Occupation of the Head of the Household	Boatman	4	3.2
	Business	6	4.8
	Fisherman	44	35.2
	Labor	47	37.6
	Shopkeeper	12	9.8
	Wood Collector	12	9.4
Monthly Income of Household Head (in BDT)	≤5000	48	38.4
	5001-7000	54	43.2

	7001≥	23	18.4
	Total	125	100.0
	Mean: 5872	**Std. Deviation: 1414.077**	
Type of Family (by Nature)	Nuclear	78	62.4
	Extended	47	37.6
Total Size of the Family	3-4	64	51.2
	5-6	45	36.0
	7-8	16	12.8
	Mean: 5.18	**Std. Deviation: 1.856**	
Total Household Income (in BDT)	4000-6000	56	44.8
	6001-8000	43	34.4
	8001-11000	26	20.8
	Total	125	100.0
	Mean: 6864	**Std. Deviation: 1761.341**	
Monthly Household Savings (in BDT)	No Saving	75	60.0
	≤1000	42	33.6
	2000≥	8	6.4

Table A. 2: Information about Environmental Situation of the Household

Characteristics/ Variables	Categories	Respondents *(f)* (n=125)	Percentage % (among =100)
Type of House	Semi-pacca	21	16.8
	Kacha	104	83.2
Construction Material of the House (Ceiling)	Straw/Chone	84	67.2
	Polythene	8	6.4
	Tin	33	26.4
Source of Water	Tape-stand/Supply	14	3.2
	Tube-well	10	8.0
	Pond	93	74.4
	River	4	3.2
	Rainwater	4	11.2
Quality of the Drinking Water	Safe	28	22.4
	Tested	4	3.2
	Not safe	69	55.2
	Iron and Saline	24	19.2
Type of Sanitation Facility	Sanitary latrines	8	6.4
	Open pit latrines	14	11.2
	Hanging latrine	103	82.4
Washing Hands after Latrine	With soap	2	1.6
	With ash	47	37.6
	With mud	38	32.4
	Nothing	38	28.4
Main Source of Light	Kerosene	101	80.8
	Solar Power	24	19.2

Table A. 3: Health Problem of the Children

Characteristics/ Variables	Categories	Respondents *(f)* (n=125)	Percentage % (among =100)
Suffering from Health Problem during Hazard (Multiple Responses)	Diarrhea	115	20.83
	Dysentery	50	9.05
	Cold fever/Cough/Severe cold	112	20.28
	Skin disease	55	9.96
	Malaria	38	7.06
	Cholera	71	12.86
	Skin/Eye related Illness	27	4.89
	Asthma	16	2.89
	Typhoid	53	9.60
	Jaundice	15	2.71
	Total	552	100.0
Nature of Treatment	Homeopath	2	1.6
	Allopath	57	45.6
	Kabiraj	36	28.8
	Self-Treatment	30	24.0
Distances of Nearest Health Complex (in km)	1-2 (km)	16	12.8
	3-4 (km)	48	38.4

	5-7 (km)	61	48.8
Enough Public Transport Facilities to Travel the Health Complex	Yes	21	16.8
	No	104	83.2
Travel to get Treatment	Walking	36	28.8
	By Van	30	24.0
	By Boat	39	31.2
	By Engine van	20	16.0
	Walking	36	28.8
Need Money for Transportation	No Cost	36	28.8
	≤50	30	24.0
	51≥	39	31.2
	Mean: 34.38	**Std. Deviation: 64.775**	
Available for Emergency Ambulance Services	Yes	12	9.6
	No	113	90.4

Table A. 4: Factor Affecting Health Problem during Disaster

Characteristics/ Variables	Categories	Respondents *(f)* (n=125)	Percentage % (among =100)
Possible Causes of Diseases of Children (Multiple Responses)	Variation in temperature	65	13.82
	Variation in rainfall	119	25.31
	Water pollution	115	24.46
	Unhygienic sanitation	103	21.91
	Natural disaster (Possible)	14	2.97
	Total	470	100.0
Bathing Place during Disaster	Tube well	4	3.2
	Pond	53	42.6
	River	68	54.2
Disaster Damage the Sanitation System of your Family	Yes	105	84.0
	No	20	16.0
Place of Family Members usable Toilet	In Bush	10	4.0
	In open place	27	21.6
	Beside river	56	44.8
	In neighbor's toilet	18	14.4
	Temporary toilet made by GO's and NGO's	14	14.2
Natural Disaster affects Health Vulnerability	Low (20-25)	4	3.2
	Medium (26-31)	53	42.4
	High (32-37)	68	54.4
Because of Disaster Mention the Level of Diseases	Increase of disease	87	69.6
	Unchanged	20	16.0
	Undecided	18	14.4
	Increase of disease	87	69.6

Table A. 5: Association between Total Household Income and Nature of Treatment

Variables	Nature of Treatment								
	Homeopath		Allopath		Kabiraj		Self-Treatment		Total
Income	n	%	n	%	n	%	n	%	
4000-6000	0	0	26	20.8	16	12.8	14	11.2	56
6001-8000	0	0	23	18.4	8	6.4	12	9.6	43
8001-11000	2	1.6	8	6.4	12	9.6	4	3.2	26
Total	2	1.6	57	45.6	36	28.8	30	24.0	125

Pearson $\chi 2$= 14.837; df=6; *p*< .022 (.05). Fisher's Exact Test= 11.598

Table A. 6: Association between Total Household Income and Primary Source of Water

Variables	Primary Source of Water										
	Tape-stand		Tube-well		Pond		River		Rainwater		Total
Income	n	%	n	%	n	%	n	%	n	%	
4000-6000	0	0	8	6.4	44	35.2	2	106	2	1.6	56
6001-8000	8	6.4	2	1.6	31	24.8	2	106	0	0	43
8001-11000	6	4.8	0	0	18	14.4	0	0	2	1.6	26
Total	14	11.2	10	8.0	93	74.4	4	3.2	4	3.2	125

Pearson $\chi 2$= 21.534, df=8; *p*< .006 (.01), Fisher's Exact Test= 23.051

Table A. 7: Association between Total Household Income and Type of Sanitation Facility

Variables	Type of Sanitation Facility						
	Sanitary latrines		Open pit latrines		Hanging latrine		Total
Income	n	%	n	%	n	%	
4000-6000	2	1.6	6	4.8	48	38.4	56
6001-8000	0	0	4	3.2	39	31.2	43
8001-11000	6	4.8	4	3.2	16	12.8	26
Total	8	6.4	14	11.2	103	82.4	125

Pearson $\chi 2$= 17.114, df=(4); *p*< .002 (.01), Fisher's Exact Test= 13.481

Table A. 8: Association between Total Household Income and Place of using Toilet

Variables	**Washing Hands after Latrine**										
	In Bush		**Open place**		**River or canal**		**Neighbor's toilet**		**Temporary toilet**		**Total**
Income	n	%	n	%	n	%	n	%	n	%	
4000-6000	10	8.0	8	6.4	26	20.8	4	3.2	8	6.4	56
6001-8000	0	0	15	12.0	18	14.4	10	8.0	0	0	43
8001-11000	0	0	4	3.2	12	9.6	4	3.2	6	4.8	26
Total	10	8.0	27	21.6	56	44.8	18	14.4	14	11.2	125

Pearson $\chi 2$= 30.787, df= 8; *p*< .000 (.01), Fisher's Exact Test= 30.806

Abdur Razzak Moral." Health Vulnerabilities among the Disaster Affected Children in Coastal Area of Bangladesh." IOSR Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT) 13.12 (2019): 17-24.