Project on

A Survey on Knowledge and Awareness of Diarrhea in Children in Rural area of Dinajpur in Bangladesh

[In the partial fulfillment of the requirements for the degree of Bachelor of Pharmacy]

Submitted To

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Faculty of Allied Health Sciences,

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APPROVAL

This project paper, "A Survey on Knowledge and Awareness of Diarrhea in Children in Rural area of Dinajpur in Bangladesh", submitted to the Department of Pharmacy, Faculty of Allied Health Sciences, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Pharmacy and approved as to its style and contents.

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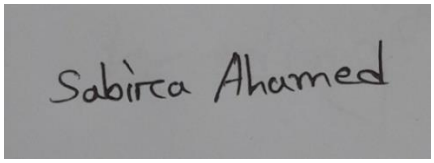
DECLARATION

I hereby declare that this project report, "A Survey on Knowledge and Awareness of Diarrhea in Children in Rural area of Dinajpur in Bangladesh", I am declaring that this Project is my original work. I also declare that neither this project nor any part thereof has been submitted elsewhere for the award of Bachelor or any degree.

Supervised By

Submitted By



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I might want to communicate my profound applause to the All-powerful Allah who has given me the capacity to finish my undertaking work and the chance to concentrate in this subject.

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Dedication……

My Parents

The persons who always encourage me in every sphere of my life

Abstract

The passage of three or more loose or liquid stools per day, or more frequently than is typical for the person, is referred to as diarrhea. The majority of the time, it is a sign of a digestive illness, which may be brought on by a number of bacterial, viral, or parasitic organisms. The goals of this project to know consciousness of general people about diarrhoea & to find out preventive capability in general people against diarrhoea. A survey created using a questionaries' was being circulated on face to face individually at the Dinajpur area. 57% bacterial infection is the main causes of diarrhoea. Some responders 32% said that, viral infection is the causes of diarrhoea but few 11% responders said that, parasitic infection is the causes of diarrhoea. 89% of had been experienced in their child diarrhoea. (94%) has been replied that lack of good drinking water facilities can prompt the spread of diarrhoea. According to the survey majority of the people (57%) has been taken medicine without consultation of doctor.46% responders taken metronidazole, 33% taken ciprofloxacin & loperamide taken 19% people. Majority of the responders (83%) said that they have been known about primary remedy of children diarrhoea. (68%) said that doctor has been prescribed combination of loperamide & oral rehydration solution (ORS). Some responders responded doctor has been prescribed antibiotics & Bismuth salicylate for the management of diarrhoea.

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Chapter 1
Introduction

1.1 Introduction

Infectious infections account for 70% of the 10 million deaths of children under the age of five that occur each year worldwide; more than 99% of these deaths occur in underdeveloped nations. One of the leading causes of death in children and a significant public health issue in underdeveloped nations, particularly among children under the age of five, is diarrhea [1].Rotavirus is currently one of the main causative agent of acute diarrhea around the world, and the clinical disease it produces frequently results in dehydration that can be fatally severe [2]. The fecal-oral route is the primary method of virus transmission, but droplet or airborne communication have also been proposed. Rotavirus is prevalent in both developed and less developed environments in temperate and tropical regions throughout the cooler months. This seasonally more accurately resembled that of prevalent intestinal infections, which are disseminated mostly by fecal-oral routes, than it does that of pediatric viruses, which spread via the respiratory route (such as measles) [3]. Despite the fact that rotavirus infections are frequently linked to winter diarrhea, warm and wet seasons are when bacterial diarrhea is most prevalent [4].Variations in the seasonal frequency of diarrhea mirrored the sharp decline in diarrhea-related mortality, which is indicative of the shift in the main enteric pathogen from Escherichia coli to rotavirus [5]. In Brazil in the 1980s, the drop in diarrhea mortality and hospitalizations was substantially brought about by oral rehydration therapy (ORT). The improvement of economic factors, as well as improvements in the availability of water, vaccination rates, breastfeeding length, and nutritional quality, all contributing to this drop [6].Breastfeeding has a small protective effect in avoiding rotavirus illness, but advancements in water quality and sanitation have not decreased rotavirus illness occurrences in industrial economy versus developing countries. Regrettably, there is insufficient evidence suggesting that the main interventions responsible for the decrease of bacterial and parasitic diarrhea disease also could reduce the likelihood of rotavirus diarrhea [7]. Successful vaccinations have the potential to decrease rotavirus infection-related morbidity and mortality.Less than half of the patients in the investigation to be reported had enteric infections of any kind, either alone or in combinations. In our enquiry of infant and child diarrheal illness, a specific protocol created to provide greater opportunities for the isolation of bacterial, viral, and other

enteric pathogens was strictly adhered to because the perception of others recommended a fairly low proportion of isolations for acknowledged enteric pathogens. [8]

1.2 Causes of diarrhea

Infection:Diarrhea is a sign of several bacterial, viral, and parasite illnesses, the majority of which are spread by contaminated waters with human waste. When there is a lack of sufficient cleanliness, hygiene, and clean water for drinking, cooking, and cleaning, infections are more likely to occur. It's also important to take geographic etiologic patterns into account. [9]

Malnutrition: Basic malnutrition commonly affects children who die from diarrhea, making them more susceptible to the illness. Each incident of diarrhea exacerbates their malnutrition in turn. In children under the age of five, diarrhea is one of the main causes of malnutrition. [10]

Source:Human feces contamination in water, such as that found in sewage systems, septic tanks, and latrines, is a serious issue. Additionally, bacteria that might cause diarrhea can be found in animal feces. [11]

Other causes: Poor personal cleanliness can make diarrheal sickness more contagious and lead it to disseminate from person to person. When food is cooked or stored in unclean circumstances, it can also induce diarrhea. Another significant danger factor is unsafe handling and storage of domestic water. Contaminated fish and seafood may potentially be a cause of the illness. [12]

1.3 Pathophysiology of Diarrhea

Diarrhea is characterized by an increase in bowel movements or recurrence. Although it can indicate primary diseases beyond the digestive system, it is one of the most prevalent clinical indications of gastrointestinal disease. Undoubtedly, diseases of the small or large bowel can cause diarrhea.[13] Although diarrhea is sometimes considered a minor discomfort or annoyance, at least 2 million people worldwide, primarily children, die from its effects every year. Although there are many other reasons why people get diarrhea, this condition is generally always a symptom of one of the four fundamental

processes listed below. Additionally, it is typical for more than one of the four processes to contribute to a case's pathogenesis. [14]

Osmotic Diarrhea

Insufficient solute uptake prevents water from being properly absorbed in the intestines. Water won't be absorbed and diarrhea will happen if too many solutes are held in the intestinal lumen. One of two circumstances is usually the cause of osmotic diarrhea: consumption of a poorly absorbed substrate: Typically, a carbohydrate or a divalent ion is the problematic component. Mannitol or sorbitol, epson salt (MgSO4), and several antacids are typical examples (MgOH2). [15] Malabsorption: The most prevalent deficiency in this group of diarrhea is the incapacity to digest specific carbohydrates, but it can develop in almost any sort of malabsorption. Lactose intolerance, which is brought on by a lack of the brush boundary enzyme lactase, is a typical case of malabsorption that affects many adult humans and animals.In these situations, a fair amount of lactose is taken (often in the form of milk), but because the intestinal epithelium lacks lactase, lactose cannot be broken into glucose and galactose for uptake. The intestinal lumen, where it "holds" water, is where the osmotically active lactose is kept. To make matters worse, the undigested food lactose travels to the large intestine where colonic bacteria digest it, producing an abnormal amount of gas. Osmotic diarrhea is distinguished by the fact that it ends when the patient stops eating the no digestible solute or goes on a fast. [16]

Secretory Diarrhea

The small intestinal lumen ordinarily secretes enormous amounts of water, but most of this water is effectively consumed prior entering the large intestine. When water is secreted into the intestinal lumen at a higher rate than it is absorbed, diarrhea results. Numerous millions of individuals have perished from the cholera-related secretory diarrhea. Vibrio cholerae, the causative bacteria, creates cholera toxin, which powerfully stimulates adenylyl cyclase and results in a sustained rise in the intracellular content of cyclic AMP in crypt enterocytes. This alteration leads to a protracted activation of the chloride channels, which are essential for the unregulated secretion of water from the crypts. [17] The enteric nervous system is also impacted by cholera toxin, which causes a

separate stimulus for release.The same sequence of events including severe secretory diarrhea, which is sometimes fatal unless the human or animal is given vigorous treatment to preserve hydration, are brought on by exposure to toxins from several other types of bacteria (for example, E. coli heat-labile toxin). [18] Several additional substances, in additional to bacterial toxins, can cause extracellular diarrhea by activating the intestinal secretion system, such as: Particular tumor types produce certain laxative hormones (e.g. vasoactive intestinal peptide) a variety of drugs (e.g. some types of asthma medications, antidepressants, cardiac drugs) some metals, natural poisons, and natural sources (e.g. arsenic, insecticides, mushroom toxins, caffeine) The majority of the time, secretion diarrheas won't go away during a 2-3 day fast. [19]

Inflammatory and Infectious Diarrhea

The gastrointestinal membrane, which is made up of a multitude of processes that safeguard the digestive tube's epithelium from injury, can be disrupted like many other obstacles. In all species, diarrhea is frequently caused by microbial or viral infections disrupting the intestine's epithelium. [20] Serum and blood exude into the lumen as a consequence of epithelium degradation, but it is also frequently accompanied with broad permeable epithelium collapse. In these circumstances, water absorption is particularly ineffective, and diarrhea follows. Pathogens that are commonly linked to infectious diarrhea include the following examples: [21]

Viruses: rotaviruses, coronaviruses, parvoviruses (canine and feline), and norovirus Bacteria: Salmonella, E. coli, and CampylobacterCoccidia species, Cryptosporium, and Giardia are protozoa.

Diarrhea Associated with Deranged Motility

The intestinal components must be appropriately accessible to the mucosal epithelium and held in place for long enough to permit assimilation in order for nutrients and water to be effectively absorbed. Even if the absorptive process itself was going smoothly, motility diseases that shorten transit time could reduce absorption and cause diarrhea. Numerous kinds of diarrhea are accompanied by changes in intestinal motility, most

frequently increased propulsion. Whether main changes in motility are the true cause of diarrhea or just a consequence is not often evident and very difficult to prove. [23]

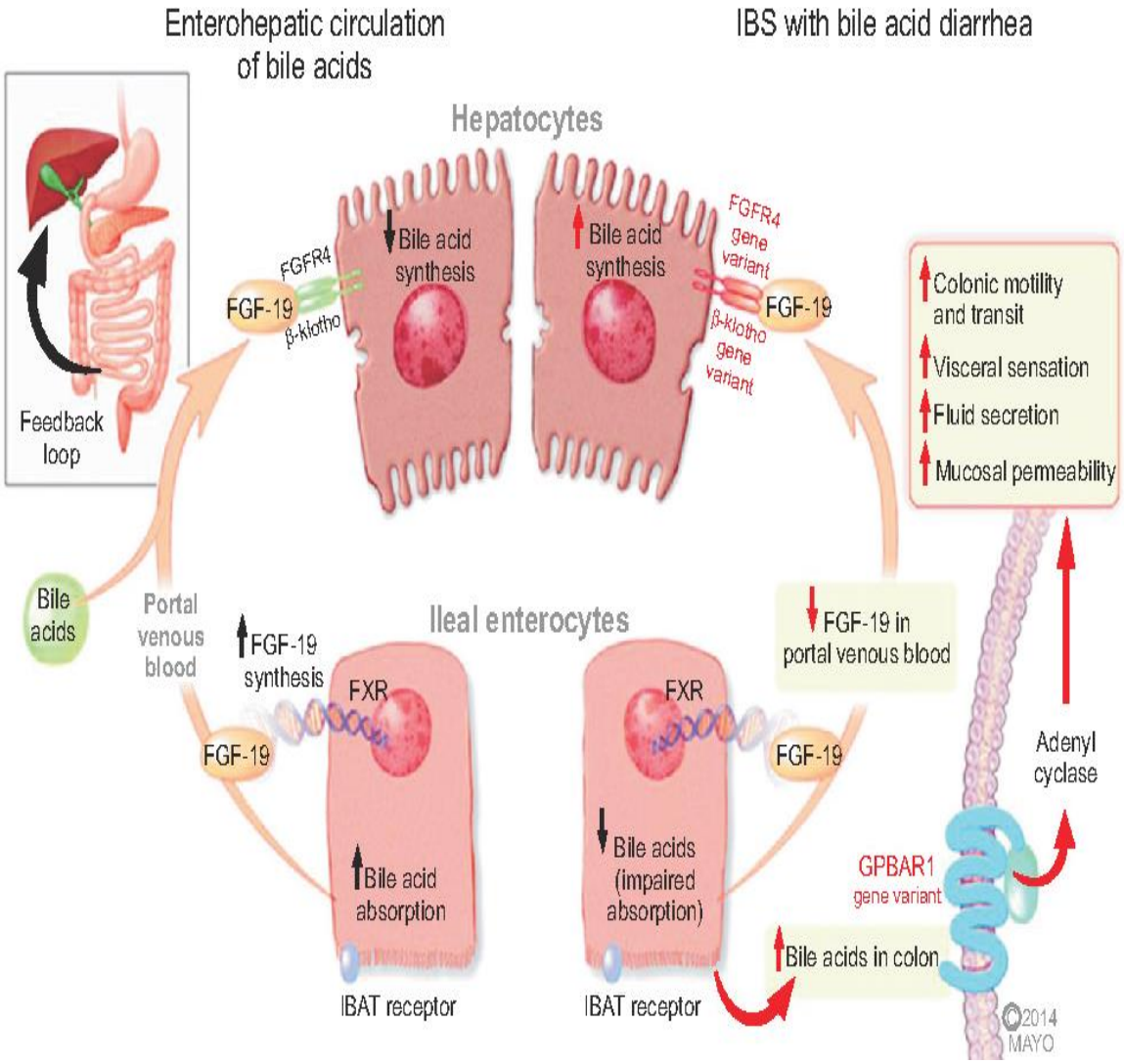

Figure 1: Mechanisms of bile acid (BA)-related bowel dysfunction in irritable bowel syndrome with diarrhea (IBS-D) or idiopathic BA diarrhea [24]

1.4 Lifestyle Risk Factors

Diarrhea can result from dietary changes including switching to a primarily liquid diet, consuming too much fiber, or consuming spicy foods. Besides assessing and, possibly, modifying what you consume and drink, some behaviors and environmental factors can increase your chance of developing diarrhea: [25]

Personal Care

Traveler's diarrhea and stomach flu are caused by bacteria, viruses, and parasites that are transmitted by contact with contaminated food, water, and objects. This is referred to as the fecal-oral pathway in the medical community. Wash your hands thoroughly before eating, when you use the restroom, and before replacing your child's diaper. Use an alcohol-based hand gel in the absence of soap and water. [26] Never consume untreated water from a stream or other natural source. Even in wealthy nations, they are susceptible to contamination by parasites that cause diarrhea and are spread by wildlife, such Giardia.Use only bottled water and avoid using ice unless it is made from bottled or purified water when visiting places where there is a higher danger of consuming tainted food and water. Avoid raw shellfish, undercooked meat, raw vegetables and fruits (unless they can be skinned), and milk products. [27]

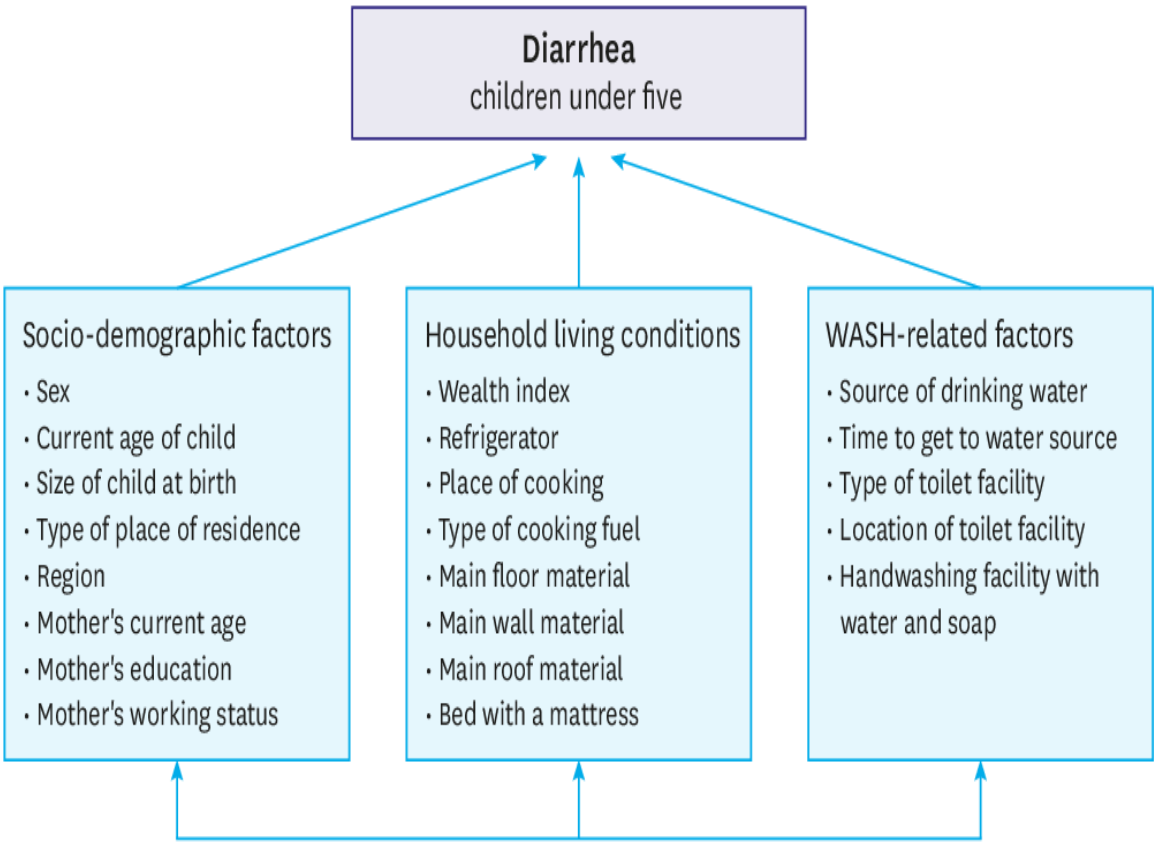

Figure 2: Lifestyle Risk Factors in diarrhoea [28]

Chapter 2
Purpose of the study

2.1 Purpose of the study

- The goals of this project are to get a thorough understanding of the medical problem being researched.
- To know consciousness of general people about diarrhoea.
- To find out preventive capability in general people against diarrhoea.
- To know general responder's knowledge about causes of diarrhoea.
- To identify their taken treatment without doctor suggestion.
- To determine which factors, contribute to the progression of diarrhoea in children.
- To have a better grasp of the many diagnostic procedures used to diagnose this disease.

Chapter 3
Methodology

3.1 Methodology

A big or small proportion of project participants, consumers, and/or stakeholders may be surveyed to collect a wealth of quantitative and qualitative data.

- I have started work for this survey in January 2023
- A survey created using a questionaries' was being circulated on face to face individually at the Dinajpur area.
- Some important data has been collected by reviewed number of related article paper from different website like google scholar, research gate and PubMed.

3.2 Sample size

- The test had 15 short-answer questions and took roughly four to five minutes to finish. The survey includes the following information: (1) prologue; (2) sociosegment statistics (age, gender, instructional level, and occupation status); and (3) diarrhoea causes and impact.
- I have tried my best to collect all data from different profession people for gathering different types of information.
- The examination is led by a questionnaires oriented survey, around 200populationswas being responded for this assessments.

3.3 Data analysis strategy

Data analysis is the methodical application of statistical and/or logical tools for describing and illustrating, condensing and summarizing, and evaluating data. Microsoft Excel was used to analyses the data.

Chapter 4
Literature Review

4.1 Diarrhoea in children: an interface between developing and developed countries

Despite significant advancements in the pathophysiology and therapy of diarrheal diseases, they continue to be one of the leading causes of morbidity and mortality in children around the world. The majority of illnesses are caused by infections, and microorganisms use clever techniques to spread disease. An increase in immune-mediated gut illnesses may have arisen in the industrialized world as a result of delayed immunological activation of the gut and disruption of normal bacterial-epithelial cross-talk. The foundation of gastroenteritis administration is oral rehydration therapy, and its formulation keeps getting better. Malnutrition is still the biggest risk factor for death from diarrhea, highlighting the value of nutrition in early treatment. Drugs are only very useful for certain indications, however probiotics and novel medicines that target the processes of secretory diarrhea promising approaches.Therefore, the most effective way to lessen the incidence of diarrheal disease may eventually be through worldwide prevention methods. These efforts include vaccinations and, more crucially, legislation to address the persistent disparities in access to adequate drinking water, sanitation, and nutrition among industrialized and developing countries. [Gwatkin D, Overcoming the inverse care law 2001]

4.2 Diarrheal disease risk in Matlab, Bangladesh

Through examining the intricate and variable interactions of biological, economic, cultural/behavioral, and environmental factors throughout time and geography, this investigation study seeks to determine the hazard for diarrheal disease in rural Bangladesh. Cholera and non-cholera water diarrheal illness risk factors are contrasted based on their relative significance for a variety of independent variables. For patients who were admitted to the International Centre for Diarrhoeal Disease Research (ICDDR) hospital between January 1, 1992, and December 31, 1994, data on diarrheal disease were gathered. Cases were classified into one of two groups of diarrheal diseases (cholera or non-cholera watery diarrhea), which were employed as dependent variables in the research's analysis phase, utilizing laboratory and hospital records.Age-matched community members were deliberately selected to serve as monitors. Information was gathered for individual variables whose relationships to watery diarrhea were

hypothesized. This was gathered through distributing surveys, acquiring secondary research from the Community Health Worker Record Books and the ICDDR's Demographic Surveillance System Records, and calculating variables using a geographic information system database. In the fight to stop the spread of watery diarrhea and secondary cholera, sanitation and water accessibility and use are crucial. Despite being essential for both cholera and non-cholera watery diarrheal risks, water consumption and accessibility parameters were more significant for non-cholera watery diarrheal incidence. It is crucial to look at whether there is a national tendency to this connection as well as the reasons behind its occurrence. [Gwatkin DR RS, Johnson K, Pande RP 2003]

4.3 Progress and barriers for the control of Diarrhoeal disease

The invention of oral rehydration fluid, which was regarded as possibly the most significant medical development of the 20th century, was made possible by the discovery of intestinal sodium-glucose transfer. Before the widespread adoption of oral rehydration solutions, patients with diarrhea could only receive intravenous fluid replenishment, therefore required them to visit a medical center to access the necessary equipment. In the resource-poor settings most impacted by diarrhoea, these services were typically neither accessible nor practical to utilize.Even though oral rehydration solutions are effective, affordable, and highly available, their use has remained stagnant. Therefore, with consistent mortality rates over the past five years, diarrhea has remained a leading cause of pediatric fatalities. The moment has come to revive attempts to lower diarrheal mortality globally because of new approaches to prevention, monitoring, and treatment of diarrhea, such as a better oral rehydration formulation, zinc supplements, and rotavirus vaccinations. [Gwatkin DR, Rutstein S, Johnson K. Socio-economic differences in health 2007]

Chapter 5
Result & Discussion

5.1 Age of responders

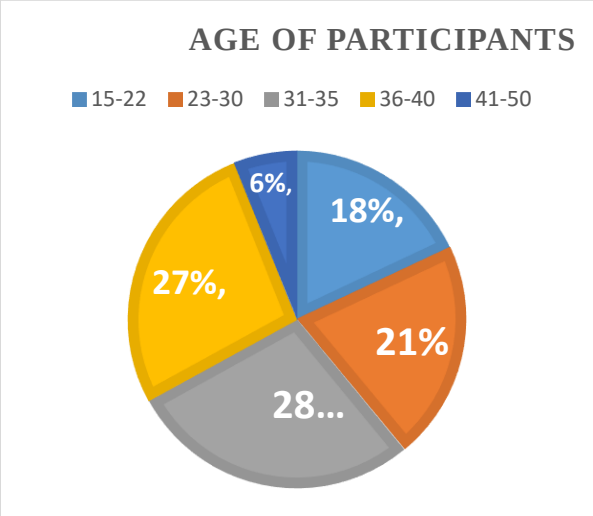

Figure 3: Age of responders

Discussion: Here many age ranges people have been responded in survey assessment. 18% of the participants were between the ages of 15-22, 21% were between the ages of 23-30, maximum 28% participants were between the ages of 31 and 35 and 27% responders were between 36-40 age ranges.

5.2 Gender of participants

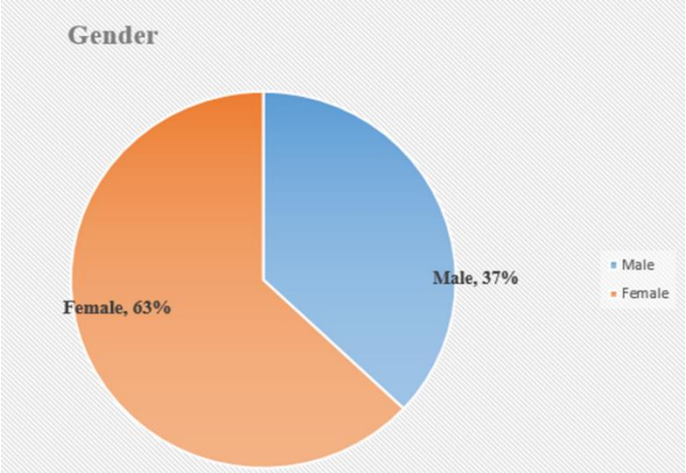

Figure 4: Gender of participants

Discussion: An overview of the respondents' demographics is shown in figure 4. Making up the majority 63% of responders are female, with 37% being male.

5.3 Professional status of responders

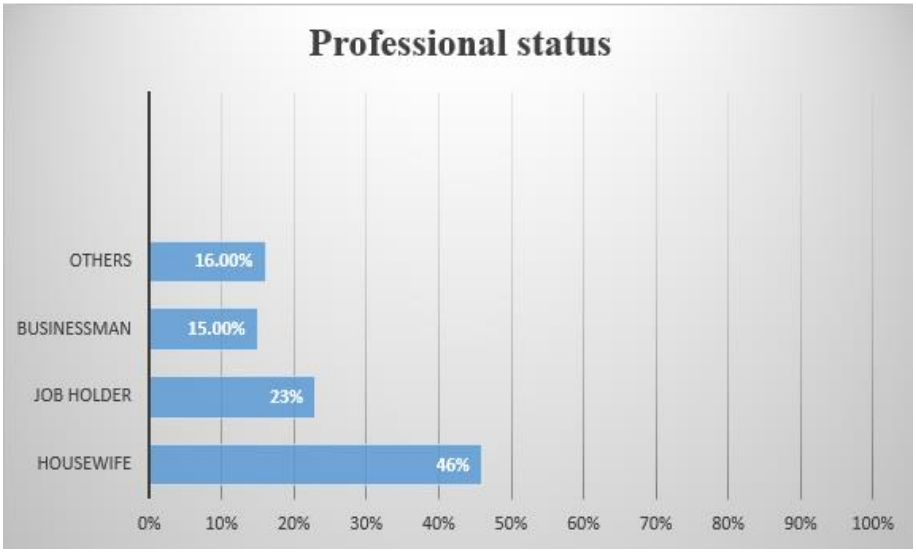

Figure 5: Professional status

Discussion: In this point has been shown most of the participants were housewife (46%). Some responders were businessman & job holder respectively 15%, 23% participants.

5.4 Idea about waterborne disease

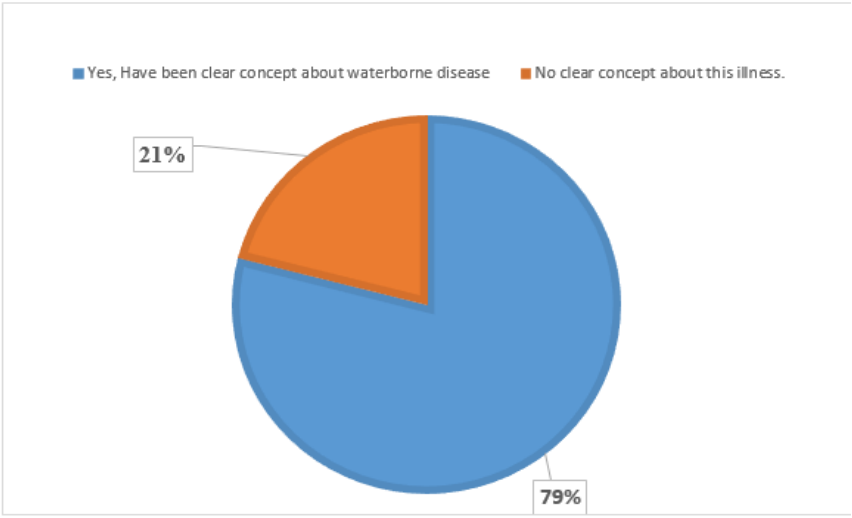

Figure 6: Knowledge about waterborne disease

Interpretation: Recreational or drinking water that has been compromised with disorder organisms or pathogens is what causes waterborne sickness. It should be noted that many aquatic infections can also spread from person to person, by contact with animals or their surroundings, or by ingesting tainted food or beverages.

5.5 Primary causes of Diarrhoea

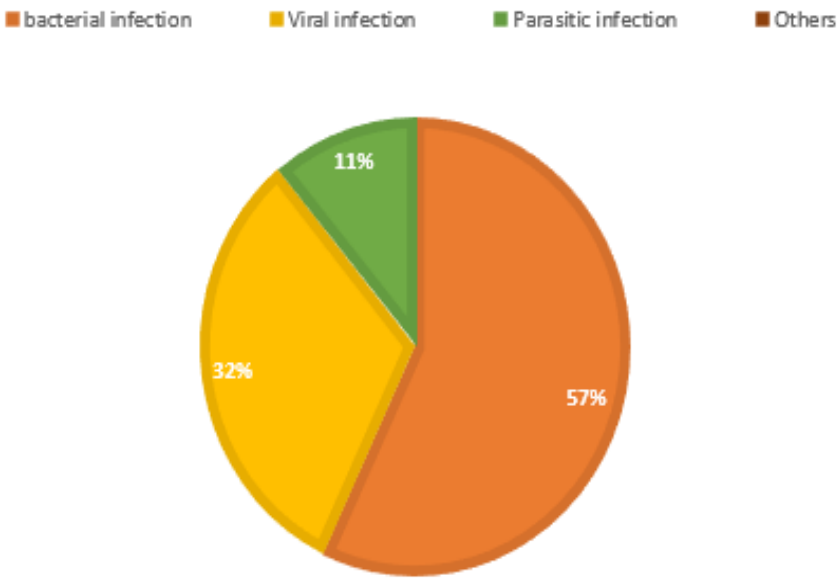

Figure 7: Primary causes of Diarrhoea

Interpretation: Causes means the producer of an effect, result, or consequence. Survey outcomes indicates that, majority of participants were responded 57% bacterial infection is the main causes of diarrhoea. Some responders 32% said that, viral infection is the causes of diarrhoea but few 11% responders said that, parasitic infection is the causes of diarrhoea.

5.6 Child had diarrhoea before

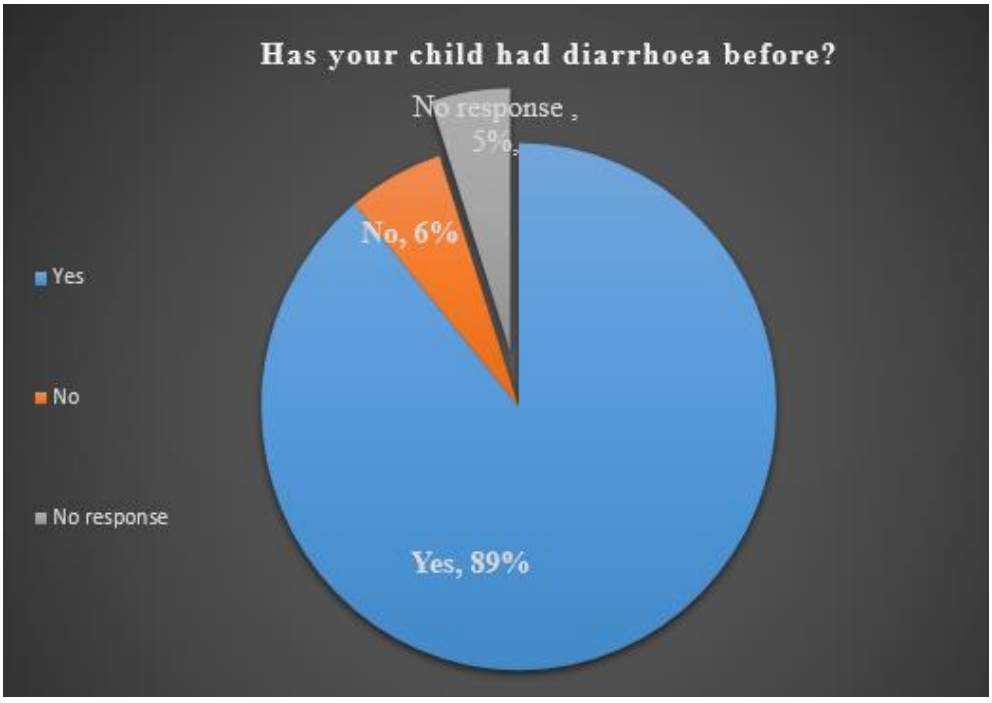

Figure 8: Diarrhoea of children

Interpretation: In young infants, diarrhea is a typical symptom of sickness. Children under the age of four in the US may experience diarrhea once or twice a year. The two types of diarrhea are acute (short-lived) and persistent (lasting more than 2 weeks). According to investigation majority of the responders were responded 89% of had been experienced in their child diarrhoea but few participants 6% were told that their children didn't suffered diarrhoea before.

5.7 Poor personal hygiene

- Not washing the hands after using toilet
- Not washing the hands before eating any food
- Not washing the fruits or vegetables before eating

Majority of the responders has been agreed with the above mentioned points against the subject of poor personal hygiene. For the prevention of diarrhoea personal hygiene should be maintained.

5.8 Lack of good toilet facilities can trigger the transmission of diarrhoea

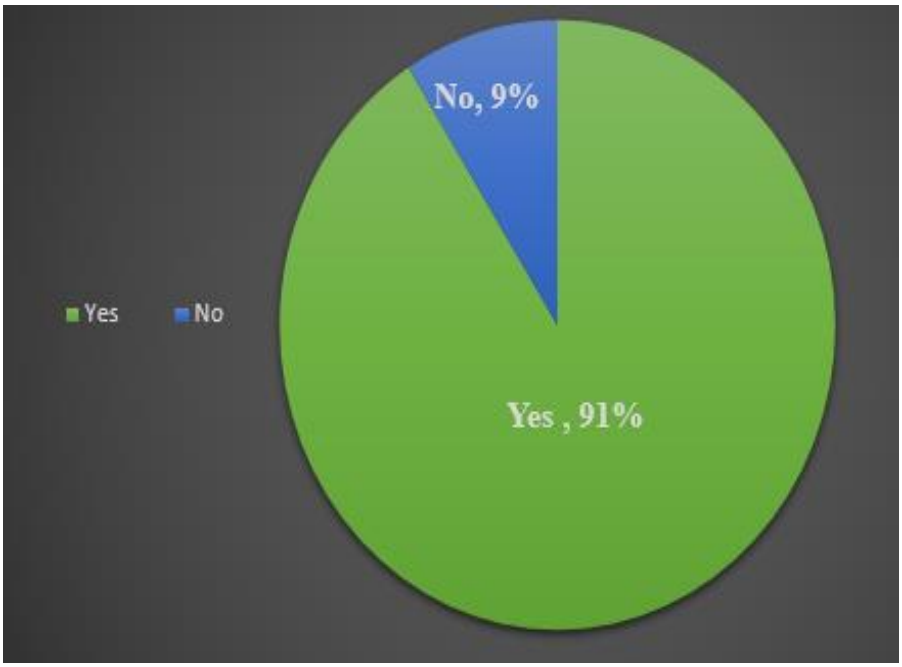

Figure 9: Transmission causes of diarrhoea

Interpretation: Lack of basic sanitation facilities can cause an unhealthy atmosphere where human waste is present. Waste from infected people can affect a community's soil and water without appropriate sanitation facilities, raising the probability of getting sick for other people.Most of the responders (91%) has been responded that lack of good toilet facilities can trigger the transmission of diarrhoea.

5.9 Lack of good drinking water facilities can trigger the transmission of diarrhoea

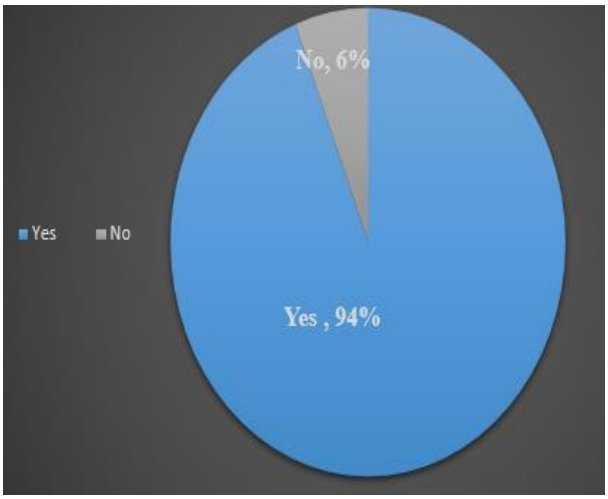

Figure 10: Transmission triggering agent of diarrhoea

Interpretation: The danger of tropical water-borne diseases like cholera, typhoid fever, and dysentery rises when there is a shortage of clean water. Infections like trachoma (an eye illness that can cause blindness), plague, and typhus can all be brought on by a lack of water.Supreme of the responders (94%) has been replied that lack of good drinking water facilities can prompt the spread of diarrhoea.

5.10 Taken any medicine without doctor's suggestion when your child had diarrhoea

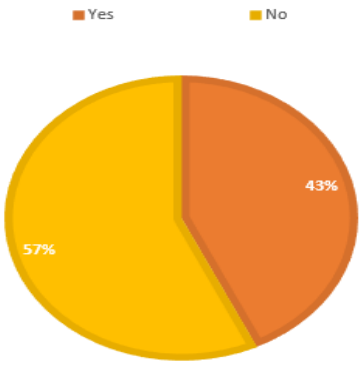

Figure 11: Taken medicine

Interpretation: According to the survey majority of the people (57%) has been taken medicine without consultation of doctor.

5.10 Type of medicine

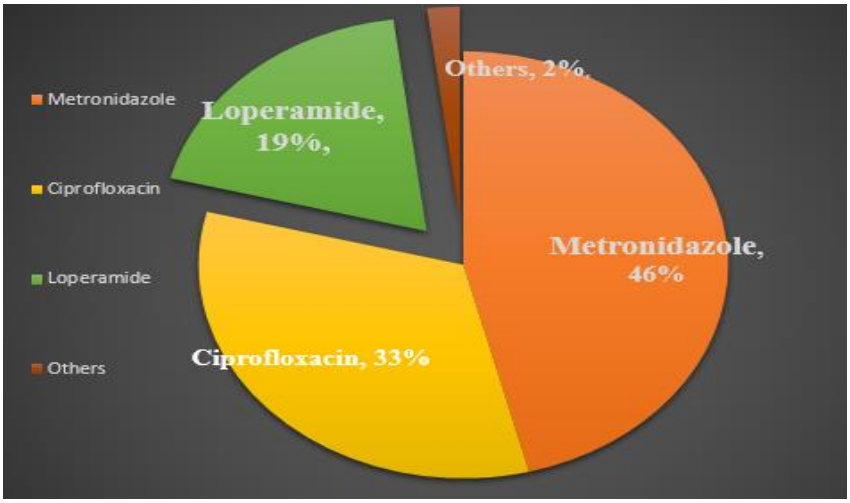

Figure 12: Taken medicine without doctor suggestion

Interpretation: In general people, most of the illness taken any medicine haphazardly without doctor prescription. According to the survey 46% responders taken metronidazole, 33% taken ciprofloxacin & loperamide taken 19% people.

5.11 Primary remedy of child diarrhoea

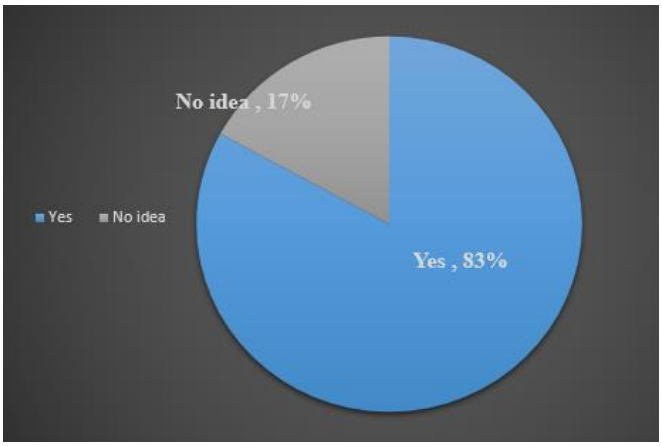

Figure 13: Primary remedy of child diarrhoea

Interpretation: Primary remedy of children diarrhoea is drink a lot of beverages, such as juices, broths, and water. Avoid booze and caffeine. As your bowel movements become

regular again, progressively introduce semisolid and low-fiber foods.Majority of the responders (83%) said that they have been known about primary remedy of children diarrhoea.

5.12 Medicine did the doctor give for diarrhoea

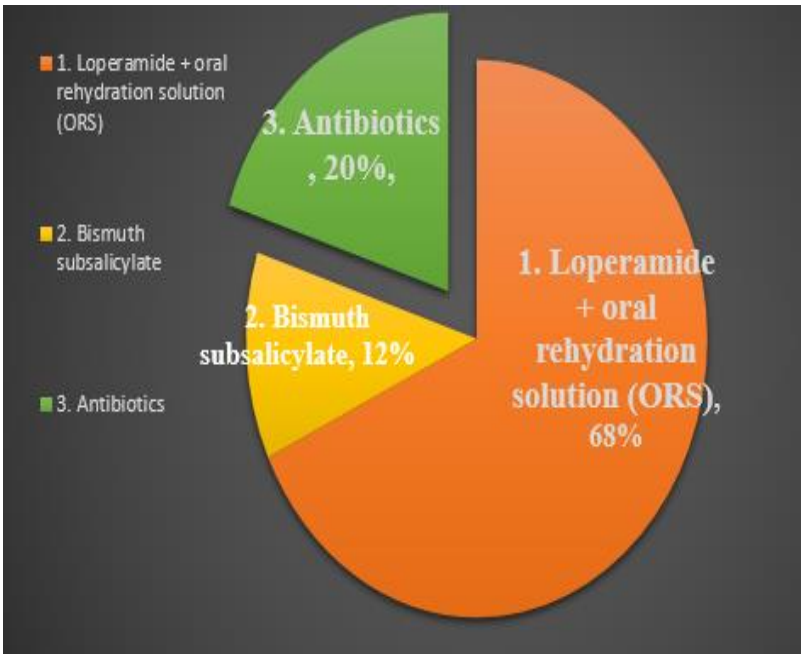

Figure 14: Given medicine by doctor

Interpretation: According to the investigation majority of the people (68%) said that doctor has been prescribed combination of loperamide & oral rehydration solution (ORS) for treatment of diarrhoea. Some responders responded doctor has been prescribed antibiotics & Bismuth salicylate for the management of diarrhoea.

5.13 Prevention should be taken for diarrhoea

I have been reached many people for their response. Different categorized person responded different types comment. Most of people answered almost similar types of response. Most of the responders exert preventive measure for diarrhoea following points:

- Only drink bottled water, even when cleaning your teeth.
- Eat nothing from food sellers on the street.
- Do not consume ice produced from tap water.
- Eat only fruits and veggies that can be peeled or that have been cooked.
- Make certain that everything you consume is fully prepared and served hot.
- Most pre-packaged foods are healthy to eat (check expiration date)
- Never consume meat or seafood that is raw or undercooked.

Chapter 6
Conclusion

6.1 Conclusion

It is obvious that the endeavor to decrease secondary cholera and non-cholera, watery diarrhea transmission depends heavily on sanitation and water availability and use. Although to many outsiders this may seem obvious, Bangladeshi health policy makers and international aid groups continue to disagree on whether the required threshold for tubewell penetration in rural Bangladesh has been met.Drinking plenty of liquids, such as liquids, broths, and water, is the primary treatment for diarrhoea in toddlers. Avoid coffee and alcohol. Incorporate semisolid and low-fiber foods gradually as your bowel motions start to return to normal. The majority of respondents (83%) claimed to be familiar with the main treatment for pediatric diarrhea.

Chapter 7

Reference

Reference

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