

## KNOWLEDGE AND ATTITUDE OF POPULATION REGARDING EPIDEMIC INFECTIOUS WATERY DIARRHOEA IN RURAL OF SALALAB, RED SEA STATE, PORTSUDAN LOCALITY, SUDAN. NOVEMBER 2018

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### Abstract

High levels of knowledge, attitude and population awareness are important to reduce the number of new cases (incidence) during epidemics of infectious watery diarrhoeal diseases and also help in minimizing the effects which are represented as morbidity and mortality associated with diarrhoea diseases.

**Methods:** A community-based descriptive cross-sectional study was conducted in rural of Salalab, Port Sudan locality (850 km from Khartoum), Red sea state, Sudan November 2018. Data were obtained by an interview questionnaire from 384 randomly-selected population in rural of Salalab, red sea state, Portsudan locality, Sudan, 2018.

**Results:** about 10.9% had good general knowledge about epidemic infectious watery diarrhoea, 44% with moderate knowledge, 44.8% with low level of knowledge; About 74% of population have average or above average knowledge about complications of watery diarrhoea the remaining 25.5% with poor knowledge. Only 13.2% had good knowledge regarding modes of transmission of watery diarrhoeal in epidemics, 32.0% with reasonable knowledge the remaining are with poor knowledge. Regarding of it's nature only 20% were able to link epidemics of watery diarrhoea with certain infectious agents. Regarding control nearly 68.4% of population had average to good knowledge (nearly 31.5% good, 36.9% moderate level of knowledge) the remaining 31.6% with low level of knowledge. Management results were close to control result (respondents with good knowledge about control more likely to have good knowledge about management) so average and good knowledge overall percentage of 64.4%.

Most respondent showed positive perception towards seriousness of watery diarrhoeal disease. And 70% have good practice regarding hand washing and general hygiene.

**Conclusion:** Low general knowledge about watery diarrhoeal epidemics as result of low health-educational level and relatively low socio-economic status, most respondents showed increased awareness about seriousness of watery diarrhoeal disease most of them don't think or don't know weather the water they use is safe or not, most of the respondents showed positive attitude regarding hand washing and general hygiene.

**Keywords:** Knowledge ,Attitude, Epidemic, Watery diarrhea.

List of abbreviations:

GI: Gastrointestinal

HIV: Human Immunodeficiency Virus

E.coli: Escherichia coli

HWT: Household water treatment

St.deviation: Standard deviation

Tot: Total

## 1. INTRODUCTION

Diarrhoea can be identified by noticeable increase in stool frequency, liquidity, or volume. Health care workers generally think of diarrhoea as an increase in stool frequency; however, for most people, the fundamental characteristic of diarrhoea is the passage of loose stools; Diarrhoea is greater described and recognized by passing a stool weight or volume greater than 200 grams or 200 ml per 24 hours.

Diarrhoea is a common GI symptom, not a disease, and can be triggered by many different conditions.

We can classify diarrhoea as watery, fatty and inflammatory.

Watery diarrhoea can be categorized as osmotic or secretory; Osmotic diarrhoea is caused via ingestion of poorly absorbed substances like sugars and fibres; Secretory diarrhoea is caused by disorder in epithelial transporting system of electrolytes[1].

Diarrhoea might also remain for several days or even more, and can cause body loss of water and salts that are necessary for life. The majority of the people died from diarrhoea certainly die from extreme dehydration and fluid and electrolytes loss. Malnourished children with low immunity as well as people with HIV infection are at increased risk of developing life-threatening Diarrhoea. Diarrhoea is usually a symptom of contamination in the gastrointestinal tract. Infection spread is through contaminated drinking water or food, or through person-to-person due to poor hygiene[2].

Infectious diarrhoea can result from infection by bacteria, viruses or parasites. Bacteria that can cause diarrhoea include E.coli, Vibrio cholerae, Campylobacter Jejuni, Salmonella and Shigella; diarrhea causing viruses include rotavirus, adenovirus and corona viruses; Parasites infections that can result in diarrhoea include Entamoeba, Giardia, Cryptosporidium, and helminthes include (Schistosoma, Strongyloides)[3].

All these infectious organisms are transmitted from stool of infected person to the mouth of other person, so this kind of transmission is considered faeco-oral transmission. Somehow, they are not the same in the actual route of entry from stool to mouth and in the required dose to cause the disease (infective dose)[4].

Diarrhoea is important due to its ability to cause many public health problems that influenced by water and sanitation and it may be water-borne and water-washed.

Diarrhoea is the most common cause of mortality and morbidity in children live in region of Sub-Saharan Africa [5]. Prevalence and incidence of diarrhea maybe associated or linked with season, geographical location, and from country to other[6].

In Sudan, number of cases of acute watery diarrhea has elicited for a first time in the last three years in camps Harboring refugees in Darfur [7].

**Problem statement:** Due lack of knowledge about diarrhoeal disease causes ,control and management, diarrhoea become one of the most causes of morbidity and mortality.

**Justification:** Increasing the level of knowledge and awareness about watery diarrhea will cause significant decrease in the prevalence and spread of diarrheal diseases caused by infectious agents.

## 2. OBJECTIVES

To assess the level of knowledge about the general informations regarding epidemic infectious watery diarrheal diseases, it's possible complications, the most important modes of transmission, the causative agent and conditions that provide it's suitable environment and knowledge about methods of control and management. Also to assess attitude towards the seriousness of watery diarrhoea, personal perceptions of how healthy the water they use, hand washing and general hygiene.

## 3. MATERIALS AND METHODS

**Study design:** This study utilizes a descriptive cross-sectional study design community based carried out in Portsudan locality, sudan.

**Study area:** The study was conducted in eastern Sudan in rural of Salalab, red sea state, Portsudan (850 km from Khartoum) in November 2018.

### Study population:

**Inclusion criteria:** The study have targeted competent adults (>18 years) population in Portsudan, rural of Salalab.

**Exclusion criteria:** young < 18 years or incompetent adults.

### Sample technique and data collection:

Sample size:

$$N = z^2 \times (p) \times (1 - p) \div d^2$$

$$\text{prevalence} = 0.5$$

$$z = 1.96$$

$$d = 0.05$$

$$N = 1.96^2 \times 0.5 \times (1 - 0.5) \div (0.05)^2 = 384$$

N= sample size, p= prevalence (0.5 from similar study Pakistan it was 50.0% [12])

z= 1.96 standard error (corresponds to 95% confidence level),  
d= absolute error (precision)

**Knowledge and Attitude of Population Regarding Epidemic Infectious Watery Diarrhoea in Rural of Salalab, Red Sea State, Portsudan Locality, Sudan. November 2018**

**Data collection:** The data was collected using interview questionnaire containing two parts (knowledge part and attitude part) is initially approved by community medicine department, faculty of medicine university of Khartoum, questionnaire was pretested giving the desired acceptable validity results. Sample selection was conducted through non-probability sampling (convenience sampling).

**Scoring:**(only applicable for knowledge part, attitude is out of scoring system so it's results are presented separately): scoring of responses was by setting each correct response to score of 1 and an incorrect response was given 0. The highest possible scores calculated out of total score of 24. Scoring from 0 to 8 considered poor knowledge, scoring from 9 to 16 considered moderate knowledge, scoring from 17 to 24 considered good knowledge.

**Variables of the study:** Dependent variables; levels of knowledge, Independent variables; Age, educational status, residential area, etc.

**4. DATA MANAGEMENT AND ANALYSIS**

Data was tabulated and analysed using the Statistical Package for the Social Science (SPSS), version 23. Then The results was presented in form of frequency tables, percentage and charts.

**Ethical clearance:**

Ethical approval was taken from Department Of Community medicine.

The researcher was respect the respondent autonomy and confidentiality

Consent was obtained from subjects as written consent in the questionnaire.

No information that can lead to identification of specific subject will be taken.

**5. RESULTS**

**Socio-demographic data:**

Table 1: describes the age of respondents participated in the study knowledge and attitude of population regarding epidemic infectious watery diarrhea in rural of salalab, Red sea state, Portsudan locality, Sudan 2018,(N= 384).

Age	384	18	75	34.87	14.38
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Table 2: Gender distribution, knowledge and attitude of population regarding epidemic infectious watery diarrhea in rural of salalab, Red sea state, Portsudan locality, Sudan, 2018,(N= 384).

	Frequency	Percentage
Male	204	58.3%
Female	180	41.4%

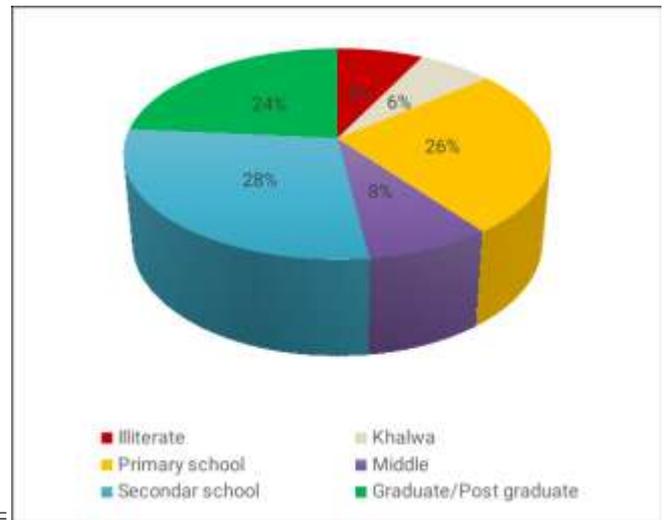


FIGURE1: Educational level, knowledge of population about epidemic infectious watery diarrhea in rural of salalab, Red sea state, Portsudan locality, Sudan 2018, (N= 384).

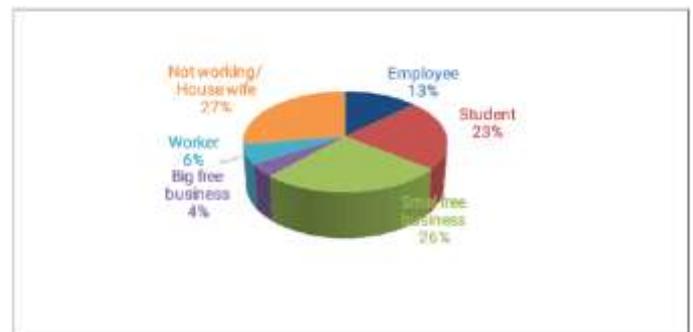


FIGURE 2: Occupation of population among sample, knowledge and attitude of population regarding epidemic infectious watery diarrhea in rural of salalab, Red sea state, Portsudan locality, Sudan. 2018,(N= 384).

Number	Minimum	Maximum	Mean	St.deviation
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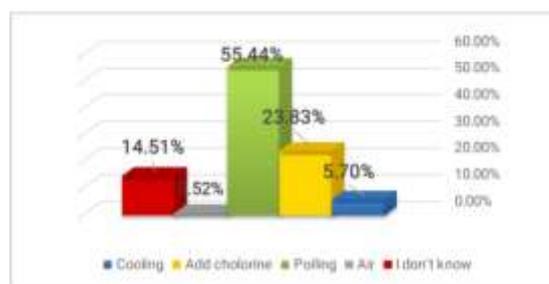
**Knowledge and Attitude of Population Regarding Epidemic Infectious Watery Diarrhoea in Rural of Salalab, Red Sea State, Portsudan Locality, Sudan. November 2018**

**TABLE 3: General and specific knowledge about watery diarrhea, knowledge and attitude of population regarding epidemic infectious watery diarrhea in rural of salalab, Red sea state, Portsudan locality, Sudan 2018, (N=384).**

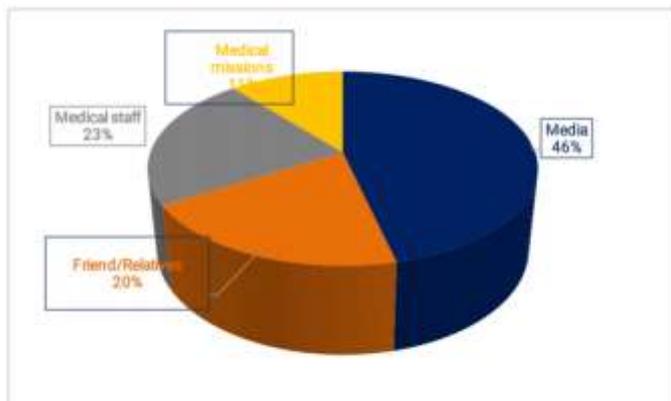
Knowledge aspect	Good knowledge		Moderate knowledge		Poor knowledge		Tot
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Tot
General knowledge about epidemic infectious watery diarrhoeal diseases	42	10.9%	169	44.0%	173	44.8%	384
Knowledge about most dangerous complications of watery diarrhea	134	34.8%	163	42.4%	98	25.5%	384
Knowledge about modes of transmission in case of Epidemics	51	13.2%	123	32.0%	210	54.7%	384
Knowledge about the nature of the most common causative agent implicated in most of epidemics of watery diarrhea	77	20.0%	—	—	307	79.9%	384
Knowledge about the most important control methods of infectious watery diarrhoeal diseases	121	31.5%	142	36.9%	121	31.5%	384
Knowledge about pre-hospital management of watery diarrhoea	114	29.6%	134	34.8%	136	35.4%	384

There was significant association between the level of knowledge about modes of transmission and knowledge about control methods (p value < 0.001).

It is important to mention knowledge about house-hold water treatment (which included in control score) because its very important method of control and dramatically affect spread of epidemics, its results presented separately. results was found to be about 55% of respondents mentioned boiling as the simplest method for disinfection of water for drinking and daily uses.



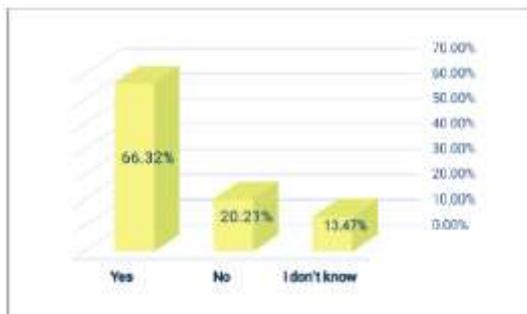
**FIGURE 3: Knowledge about House-hold water treatment (HWT), knowledge and attitude of population regarding epidemic infectious watery diarrhoea Port sudan locality, Sudan 2018,(N= 384).**



**FIGURE 4:** Population source of knowledge about epidemic infectious watery diarrhea in rural of Salalab, Red sea state, Portsudan locality, Sudan 2018,(N= 384).

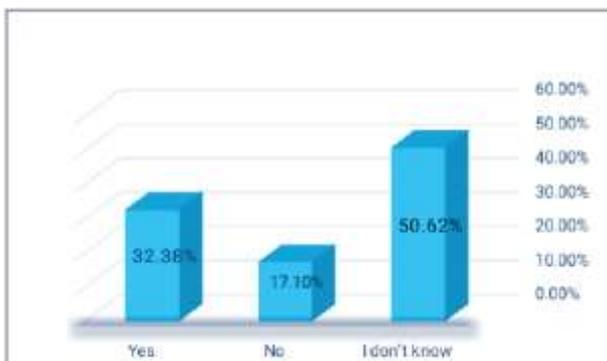
Attitude results:

More than 66% of the respondents perceive and aware that watery diarrhea is dangerous disease when asked if they think it is dangerous as shown in the Bar chart below:



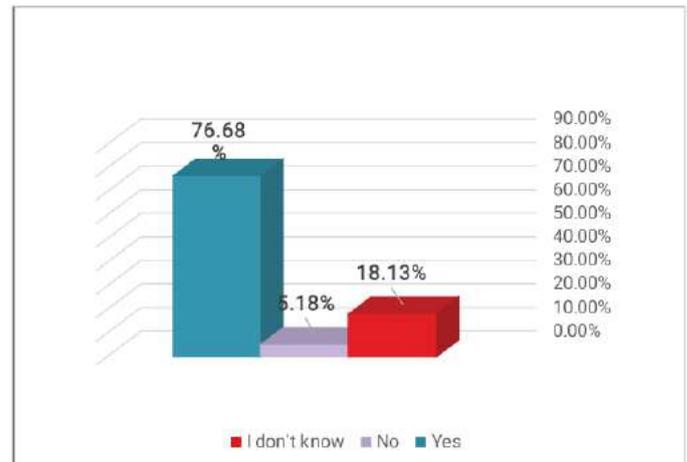
**FIGURE 5:** Population perception about seriousness at watery diarrhea, knowledge and attitude of population regarding epidemic infectious watery diarrhea in rural of salalab, Red sea state, Portsudan locality, Sudan 2018,(N= 384).

About 50% of population showed positive attitude when asked if they think if the water they are using is safe as shown in the Bar chart below:



**FIGURE 6:** Water safety attitude”do you think the water you use is safe?”, knowledge and attitude of population regarding epidemic infectious watery diarrhea in rural of salalab, Red sea state, Portsudan locality, Sudan 2018 (N= 384).

Hand washing gives clue about the general population perception about hygiene 76% showed positive attitude towards hand washing when asked if they think hand washing can participate in prevention. As showed in the Bar chart below:



**FIGURE 7:** Hand washing attitude, knowledge and attitude of population regarding epidemic infectious watery diarrhea in rural of salalab, Red sea state, Portsudan locality, Sudan 2018,(N= 384).

Respondents with comprehensive knowledge of causes of diarrhea were less likely to have poor hand-washing practice and more likely to have received water, hygiene and sanitation education.

## 6. DISCUSSION

Population’s level of knowledge and attitude with respect to causes, Signs and symptoms, management, prevention, and control are very critical in lowering morbidity and mortality due to diarrhea. So, surveying population’s information and mind-set would be accommodated in planning a compelling well-being practise strategy. Every society ought to be steered thoughts and ideas on diarrhoeal diseases held through the population, considering off base and traditional concepts would be perilous.

In this study, Mean age of the respondent was 34.7 community based 58.7% male 41.3% females. Mean score knowledge of males is slightly greater than that of female. This result may be attributed to society restrictions on female education but this is decreasing and society awareness about education is increasing also to mention early marriage for girls so lower concentration in academic pathway.

It was obvious that most of the people had good information of what diarrhoea is. But additionally considerable population appeared to be had negative predominant knowledge or at least have diminished knowledge at essential points that implicated in the epidemic of watery diarrhea. For example, knowledge

level concerning cause and transmission is very low about mean of (17%) in contrast to other studies in Ethiopia and Bangladesh ([8], [9]).

Nearly third of population had poor knowledge about the complications of watery diarrhoeal disease the remaining two-thirds has reasonable knowledge indicate that they are familiar with complications which reflect the nature of population in the area with decreased treatment seeking behaviour opposing to other study ([10]) conducted in Brazil which showing increased treatment seeking behaviour due to increased education.

Only 45.4% had good to moderate knowledge regarding the most important modes of transmission and the suitable environment for the most common causative agent, the remaining 54.6% scored lower than half which is very serious result, the same result was obtained in study also conducted in Sudan [11] showing low score in the same category, knowledge about modes of transmission significantly results in reduction in the incidence of watery diarrhea in epidemics.

Knowledge about the nature of the most common agent implicated in epidemics of watery diarrhea was extremely low with just 19.9% answered the right answer, this may be due to low level of health-education. only 15% were able to specifically identify epidemics of watery diarrhea as cholera the same result obtained in the study in Bangladesh [9] where 29% linked it to cholera.

Knowledge about the most important methods of control was better than all of the above results 68% of population had scored good to moderate knowledge about methods of control the remaining scored below average also reflect the urgent need for health-education programmes.

Less than 60% of the respondents of the current study knew that proper sanitation and health education are important preventive measures This may be because of the poor infrastructure of the urban salalab sanitation and lack of health-education activities in the community.

Pre-hospital management of diarrhoeal illnesses plays very integral position precisely when we discuss rural areas where access to the close by primary health care centre or secondary health facility takes very long time or even people there might also relay greater in local strategies of remedies like traditional medicines or nearby jugglers (fageer) in this study 39% with good knowledge about pre-hospital management 34% with reasonable knowledge when we return to the most recent and relevant studies [11] which conducted in Sudan showing increased level of knowledge about this issue may be due to development telecommunications and media but there is a large portion with decreased media coverage (no internet, limited access to tools due to poverty, limited

electricity coverage). more than 35% scored low when we add these to the second average group we obtain nearly 70% with average knowledge or lower which may also be attributed to low general education status especially health-education in the population and low socio-economic status which restrict low-income population from achieving the basic educational level.

Perception of population about the seriousness of watery diarrhoeal illness was positive as 78% mentioned it as serious disease may be due to their old experiments and serious complications they had encountered in the past, so people know that watery diarrhea is serious, but they lack adequate knowledge about its nature, mode of transmission, control and management.

Nearly half of population think that the water they use is safe for use and drinking, the other majority don't know whether it is safe or not, small proportion not safe at all. when we identified the source and found that most of them depend on surface water (wadi) or ground water. there is water supply by the piped water systems but most of them out of system because of relatively high fees to get the service and monthly charges.

Knowledge about house-hold water treatment (HWT) must be mentioned here for its important role in limiting epidemics of watery diarrhoeal diseases approximately 55% of population know the simplest method of (HWT) which is disinfection by boiling.

#### **Limitations:**

Inability to find data in the locality (full lists), tendency of households to not giving accurate data (numbers and names) of all residents of the house due to cultural backgrounds, limited time and resources, all these factors resulted in convenience sampling, instead of systematic random sampling which is more accurate.

Are some obstacles to this study, we were now not capable to decide whether, and to what extent, bias of non-response has occurred, as we were unable to check the level of watery diarrhoeal knowledge in non-responders. Also, as is common for most questionnaire surveys, also we cannot exclude desirability bias of society (the proclivity of survey respondents to answer questions in a way that will be considered good by means of others); Lastly, as with other surveys, by giving questions with yes/no/don't know options of response, the questions may also act as a cause permitting educated guesses in place of measuring knowledge directly and so would possibly slightly overestimate knowledge level.

## **7. CONCLUSION**

Low general knowledge about watery diarrheal epidemics as result of low health-educational level and relatively low socio-

economic status, most respondents showed increased awareness about seriousness of watery diarrheal disease most of them don't think or don't know whether the water they use is safe or not, most of them showed positive attitude regarding hand washing and general hygiene.

## **8. RECOMMENDATIONS**

Health education of diarrhoea-related problems should be carried out through the mass media in a health education program to be designed and conducted by means of the primary health care program administrators. Boys and girls' schools are ideal locations for such education on diarrhoea.; Every effort ought to be geared in the direction of educating the public about these false beliefs on every occasion they are detected; as the society becomes more educated, much can be accomplished in hospitals, shops and schools through leaflets and posters.

Early detection of danger signs, symptoms, treatment and management of watery diarrhoea or diarrhea generally at home is necessary to prevent or decrease morbidity and mortality due to dehydration. Preventive efforts to control diarrhoeal illnesses will focus on rising the population's awareness and attitude and addressing behavioural elements related to diarrhoea management; Health system must carry out surveillance activities in conjunction with community health workers to identify the problem early and address the risk factors associated with the disease. Health education, team work, dissemination of knowledge, and communication skills should be designed and enforced to increase awareness and change the false concepts of the community as a whole.

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**Dr. Mohamed Alzain Altayeb Abdallah**

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