

# A Cross-Sectional Investigation of Diarrheal Illnesses and ORS Knowledge and Practises Among Young Mothers

Tulika

Senior Resident, Department of Pediatrics, Patna Medical College and Hospital, Patna, Bihar, India

Received: 03-08-2021 / Revised: 10-09-2021 / Accepted: 22-10-2021

Corresponding author: Dr Tulika

Conflict of interest: Nil

## Abstract

**Background:** According to World Health Organization (WHO), Diarrheal disease is the second leading cause of death in children under five years old. It is both preventable and treatable.

**Objective:** To find out the knowledge and practices of mothers regarding the causes, prevention and management of diarrhoeal disease in children under 5 years old.

**Materials and Method:** This cross-sectional study was conducted in the Department of Pediatrics, Patna Medical College and Hospital, Patna, Bihar, India, over a period of last 6 months using simple random sampling method including 337 mothers with at least one child under less than five years of age. All the mothers were interviewed using preformed questionnaire including open, semi-open and closed end questions.

**Results:** Most of the mothers knew the common signs and symptoms of diarrhea while few of mothers knew the danger signs of diarrhea. Approximately 72.11% of mothers knew the common causes of diarrhea while very rare mothers knew about the treatment of diarrhea. Approximately 91.03 % of mothers have heard about the ORS, out of these mothers, 87.83 % of mothers knew how to prepare ORS but only 45.40 % mothers have used it in their life in diarrhea regularly.

**Conclusion:** Association between knowledge and practices is not satisfactory. Therefore, health education, implementation of policies, sanitation, implementing preventive interventions, training anganwadi workers and other health workers is important to create a positive attitude and practice towards the prevention and better management of diarrheal diseases in children under 5 years old.

**Keywords:** ORS, Diarrhea, Knowledge, Practices.

This is an Open Access article that uses a fund-ing model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

## Introduction

Diarrhea by definition is the passage of unusually loose or watery stools, at least three times in a period of 24 hours. However, the consistency is a more reliable indicator of diarrhea rather than the frequency of stools [1]. Diarrhea is due to infections caused by a wide range of organisms which include bacteria, viruses

and protozoans, such as rotavirus and Escherichia coli. Diarrhea can last several days and can leave the body without the water and salts that are necessary for survival [2].

Diarrheal disease remains the second leading cause of death among under 5 children globally [2]. Nearly one in five

deaths of a child – about 1.5 million each year – is due to the disease of diarrhea. It kills more young children than malaria, HIV/AIDS and measles together [3]. Every year diarrhea kills around 525,000 children under five [2]. Rotavirus is among the commonest diarrheal pathogen in children worldwide that causes about one-third of diarrhea-associated hospitalizations and 800,000 deaths per year [4]. Children in the poorest countries like Ethiopia account for 82% of rotavirus deaths of under-five children [5]. Rotavirus can cause intestinal losses of fluid, electrolyte and nutritional deficiency which relatively progresses rapidly to cause dehydration and death [6, 7].

Most of the diarrheal deaths are due to dehydration. The fluid lost can be restored in over 90% of cases by oral rehydration salt (ORS) which is dissolved in water to form ORS solution. 58% of deaths due to diarrhea have been attributed to unsafe water supply and lack of sanitation and hygiene (inadequate wash) [8]. Diarrhea is the most important public health problem connected to water and sanitation and can be both water borne and water-washed. Many more children could have been saved through basic knowledge and interventions to improve quality of drinking water, sanitation and hygiene for diarrhea prevention along with the wide spread use of a simple solution of oral rehydration salts (ORS) and zinc supplementation during incidents of acute diarrhea [9].

With this study we aimed to find out the knowledge and practices of mothers regarding the causes, prevention and management of diarrhoeal disease in children under 5 years old.

### Materials and Methods

This cross-sectional study was conducted in the Department of Pediatrics, Patna Medical College and Hospital, Patna, Bihar, India, over a period of last 6 months using simple random sampling method

including 337 mothers with at least one child under less than five years of age. All the mothers were interviewed using pre formed questionnaire including open, semi-open and closed end questions.

### Methodology

A pre-designed questionnaire was used to assess the knowledge and practices of the mothers which included three sections which are demographic details, knowledge section and practice section.

As according to NFHS-4, Prevalence of diarrhea is highly heterogeneous across the states of India, and it ranges from 0.6–29.1% in period 2015–2016 [10]. The sample size (n) required for this study was determined using a single population proportion formula [ $n = (Z\alpha/2)^2 p(1-p)/d^2$ ]; whereas n = the required sample size for this study,  $Z\alpha/2(1.96)$ : significance level at  $\alpha = 0.05$  with 95% confidence interval, p: upper range of prevalence of diarrhea in India which was 29.1% [10], d: margin of error (5%) and 10% non-response rate. The final required sample size was 337 approximately.

Two days of training was given to the data collectors and supervisors on the data collection tool and procedures. Data collectors were supervised closely by the supervisors and the principal investigators. Completeness of each questionnaire was checked by the principal investigator and the supervisors on daily basis to maintain the data quality and reduce the information bias.

### Results

According to our study, majority of the mothers (54.3 %) belong to age group of 25-34 year of age with mean age of 27 years. Approximately 42.14 % of the mothers were unemployed and 44.21 % have less than secondary education. 35.8 % of mothers belonged to urban areas while majority of our sample population belong to the rural areas i.e. 64.6 %

**Table 1: Demographic details**

Variable	Categories	Frequency(n)	%
Age of mother (in years)	18-24	106	31.45
	25-34	183	54.30
	35-44	40	11.87
	>45	8	2.37
Age of child (in months)	0-5	82	24.33
	6-24	148	43.92
	25-59	107	31.75
No. of children	1	89	26.41
	2	192	56.97
	3	26	7.71
	4 or more	30	8.91
Qualification of mother	Illiterate	27	8.01
	Primary (class 1-5)	50	14.84
	Upper primary (class 6-9)	72	21.36
	Secondary (class 10)	88	26.11
	Senior secondary (class 11-12)	53	15.73
	Undergraduate	25	7.42
	Postgraduate	22	6.53
Occupation	Unemployed	142	42.14
	Govt./ NGO employed	83	24.63
	Private/ Self- employed	112	33.23
Lifestyle	Urban	119	35.4
	Rural	218	64.6

Out of the 337-sample population, majority of the mothers (85.16 %) knew the meaning of diarrhea and its cause (72.11 %). But less no. of mothers knew about danger signs of diarrhea (53.12 %).

This proves that most of the mothers had knowledge about causes and management of diarrhea.

**Table 2: knowledge-based questions**

	Characteristic	Frequency	%
Definition of diarrhea	Frequent passing of watery stool (3 or more times)	287	85.16
	Frequent passing of normal stool	41	12.17
	Blood in stools	6	1.78
	Greenish stools	3	0.89
Diarrheal causes	Teething	62	18.40
	Evil eye	29	8.60
	Contaminated water	243	72.11
	No idea	3	0.89
Diarrheal danger signs	Becoming weak or lethargic	179	53.12
	Repeated vomiting/vomiting everything	92	27.30
	Fever and blood in the stool	31	9.20

	Marked thirst for water	24	7.12
	Others	11	3.26
How do you treat your child while having diarrhea?	Give more water and ORS	307	91.09
	Decrease water/ food	20	5.93
	Don't know	10	2.97
How to prepare ORS?	Mix ORS powder with water	297	87.83
	Mix ORS power with milk/ fruit juice	5	1.48
	Don't know	35	10.39

Table 3: 72.40 % of the children had suffered from diarrhea in last one year out of 337 children. Only 59.64 % of the mothers use boiled or filtered drinking water for daily use. A good number of mothers (35.02 %) do not wash their hands

always before cooking food leading to poor sanitation. Only 45.40 % of mothers always use ORS when their child has diarrhea. Most of the women did not take medical advice from the doctors when their children were suffering from diarrhea.

**Table 3: Practice based questions**

Questions	Responses	Frequency	%
Did your child have diarrhea in the last one year?	Yes	244	72.40
	No	93	27.60
Do you routinely use boiled or filtered drinking water?	Yes	201	59.64
	No	136	40.36
Do you routinely wash your hands with soap and water before cooking food?	Yes	219	64.98
	No	118	35.02
When your child had diarrhea, how often you use ORS?	Always	153	45.40
	Sometimes	128	37.98
	Never	56	16.62
How often do you seek medical help for treatment when your children have diarrhea?	Always	132	39.17
	Sometimes	149	44.21
	Never	56	16.62

## Discussion

This study has assessed the knowledge and practices done by mothers of children under five years in daily life as well as when their children have diarrhea. The data from this study proves that most of the mothers have knowledge about diarrhea (85.16 %), its causes (72.11 %) but still 72.40 % of children had diarrhea in last one year due to poor practices. This shows that most of the mothers have negative attitude towards diarrhea and its management.

Similar study done by Chaudhary et al also reveals that 90% mothers had sufficient

knowledge about hand-washing.[11]. Another study done in South India reveals that 83.4% mothers understand the importance of hand-washing[12], while our study reveals that only 64.98% mothers practice hand washing in daily life. It might be because our sample populations have more of the population from rural region (64.6%) that might have lack of knowledge about importance of hand washing especially before cooking food. Therefore, it is of utmost importance to teach the values of hand washing with soap and water to maintain proper sanitation and personal hygiene. Various programs should be

initiated to teach the importance and proper technique of hand washing.

A study done in Delhi by Chaudhary et al, revealed that around 70% of mothers gave extra fluids during diarrheal episode[11] which is less in number as compared to our study (91.09%). 87.83 % of mothers knew that how to prepare ORS while 45.40 % of mothers always use ORS when their child had diarrhea and 37.98 % of mothers use ORS sometimes depending on severity. This is a reflection of the poor knowledge of mothers regarding the importance of ORS for treatment of diarrhea.

In the study population, only 39.17 % had sought for medical help during diarrheal episodes regularly. According to the most of interviews, even those who sought medical help, majority of them visited nearby pharmacist for treatment, instead of visiting health care settings. This might be a reflection of the health seeking behavior of the local community.

Diarrhea is usually a symptom of an infection in the intestinal tract, which can be caused by a variety of bacterial, viral and parasitic organisms. Infection is spread through contaminated food or drinking-water, or from person-to-person as a result of poor hygiene.

### Conclusion

The findings of this study showed that despite having good knowledge about diarrhea, practice of mothers were unsatisfactory about the prevention and management of under-five diarrheal diseases. Interventions to prevent diarrhea, including safe drinking-water, use of improved sanitation and hand washing with soap can reduce disease risk. Diarrhea should be treated with oral rehydration solution (ORS), a solution of clean water, sugar and salt. Therefore, health education and community conversations should be planned and implemented to create positive attitude and practice towards the prevention and management of diarrheal diseases in children under 5 years old.

### References

1. WHO. The treatment of diarrhoea. WHO. Available at:<http://apps.who.int/iris/bitstream/10665/43209/1/9241593180.pdf>. [Last Accessed on 29 September 2021].
2. World Health Organisation diarrhoeal disease fact sheet. Available from: <http://www.who.int/mediacentre/factsheets/fs330/en/>. [Last accessed on 29 September, 2021]
3. Wardlaw T, Salama P, Brocklehurst C, Chopra M, Mason E. Diarrhoea: why children are still dying and what can be done. *Lancet*. 2010;375(9718):870–2.
4. Parashar UD, Bresee JS, Gentsch JR, Glass RI. Rotavirus. *Emerg Infect Dis*. 1998;4(4):561.
5. Parashar UD, Hummelman EG, Bresee JS, Miller MA, Glass RI. Global illness and deaths caused by rotavirus disease in children. *Emerg Infect Dis*. 2003;9(5):565–72.
6. King CK, Glass R, Bresee JS, Duggan C, Control CfD, Prevention. Managing acute gastroenteritis among children. *MMWR Recomm Rep*. 2003;52(1):16.
7. King CK, Glass R, Bresee JS, Duggan C, Control CfD, Prevention. Managing acute gastroenteritis among children. *MMWR Recomm Rep*. 2003;52(1):16.
8. Preventing diarrhoea through better water, sanitation and hygiene: Exposures and impacts in low- and middle-income countries. Geneva: World Health Organization; 2014. Available at: [http://apps.who.int/iris/bitstream/10665/150112/1/9789241564823\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/150112/1/9789241564823_eng.pdf). Accessed on 29 September, 2021.
9. Arora K.K, Taran S.J, Gupta N. A cross sectional study: knowledge and practices about diarrheal diseases and ORS in the mothers of under five years children. *Int J Pediatr Res*. 2019;6(02):58-63.
10. Sheet IF. International Institute for Population Studies. 2017. National family health Survey-4.

11. Chaudhary P, Basu S, Dzeyie AK, Gulla S, Khade S, Patel A, et al. Knowledge, attitude and practice of mothers regarding diarrhoeal illness in children under five years of age: a cross sectional study in an urban slum of Delhi, India. J Communicable Dis.2015;46(3):13-21.
12. Datta SS, Singh Z, Boratne AV, Senthilvel V, Bazroy J, Dimri D. Knowledge and practice of handwashing among mothers of under five children in rural coastal South India. Int J Med Public Health. 2011;1(1):33-8.