Original article:

Assessment on the awareness level about diarrhoea and its management among mothers attending outpatient department in a rural hospital of West Bengal, India

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Abstract

Background*:** Diarrhoea is one of the leading causes of under-five childhood morbidity and mortality in India, despite the availability of easy interventions through oral rehydration at the community level. The level of knowledge varies from country to country and within the country, further variations exist in state, district and sub district level based on difference in socio-demographic characteristics of the population. And based on these variations, different community needs different health education efforts in its extent and approaches. It was therefore relevant to explore the level of awareness about diarrhoea and its management among the mothers who were the first level of caregivers. ***Objective: To assess the level of knowledge about diarrhoea and oral rehydration therapy among the mothers having their children of 6 months to 5 yrs with diarrhea ***Materials and methods:*** It was a facility based cross-sectional descriptive epidemiological study conducted among 62 mothers having their children of 6 months to five years with diarrhoea. Mothers attended a rural hospital under the geographical area of Madhyamgram in North 24 Parganas district of West Bengal, India. Data was collected by face to face interview of the mothers in the outpatient department of the hospital using a pre-designed and pre-tested questionnaire. The analysis was done in Statistical Package for Social Sciences (SPSS), version 20.0 using bivariate and multivariate (multiple logistic regression model) to examine the statistical significance at 95% confidence interval. ***Results:*** Mean knowledge score was 7.8 (Range 0-17). Lower knowledge score group (0-8) accounted to 36 persons (37.1%) and higher knowledge group (9-19) accounted to 26 persons (62.9%). Knowledge about alarming symptoms of the dehydration was significantly poor. At the individual level, literacy of women and their caste were strongly associated with the knowledge about diarrhoea and its management. At the household level, the way of the disposal of household garbage was also strongly associated. ***Conclusion:*** Considering the poor knowledge of the mothers, the study recommends for extensive health education measures widely in the community with a special focus for the illiterate and socio-economically lower groups, and also for the families having the practice of open garbage disposal.

Keywords: Awareness; Diarrhoea; Child mortality; Hygiene

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Introduction

Diarrhoea is one of the top five causes of death among infants and under five children in India, despite the availability of easily implementable interventions and existence of National Guidelines for Management at the community level. When the World Health Organization (WHO) initiated the diarrhoeal diseases control program in 1980. Approximately 4.6 million children used to die each year out of dehydration caused by diarrhoea. It still remained as a major killer with 1600 under five deaths per day accounting for 9 % death per year in 2012 throughout the world.[1] In India diarrhoea caused 8% of under five mortality in 2013 which was only next to Acute Respiratory Tract Infection (ARTI). Comparing the current global burden of diarrhoea

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with previously published estimates, it highlighted that the incidence of diarrhoea had not changed much, although overall mortality declined. This could be attributed partly to advances in knowledge and practice of oral rehydration technique.[2] A health survey conducted in 2005-06 revealed out the scenario about the use of oral rehydration therapy (ORT) among the children of under 5 years suffering from diarrhoea. It showed that use of ORT was significantly low across different strata of the society (urban: 38%, rural: 31%, male: 34%, female: 31%, poorest: 29%, middle: 31%, richest: 45%). This indicated higher incidence of death rates of among under five children who were female, and belonged to poor economic strata and from rural areas.[3] WHO recommended the use of oral rehydration solution (ORS) and also zinc supplementation in diarrhoea and the use of oral rehydration therapy (ORT) as the first choice in diarrhoeal disease control efforts. The fluids given could be either ORS or recommended home-based fluids (*e.g.*, soups, rice water, yoghurt drinks or clean water). It was advised that all children with diarrhoea should be given more fluids to drink to compensate the loss of fluids and that feeding should not be stopped during diarrhoea.[4] Oral rehydration salt solution was considered as a life-saving treatment that was safe for people to use at their homes. It had been the experience of health-care workers in Kolkata, India, that as many as 90-95% of all cases of cholera and acute diarrhoea could be treated with oral fluids alone.[5] According to different country-specific data sources, significant progress was reported during the 1980s regarding the effects of oral rehydration therapy at the country level. The low coverage of ORT in India had, in contrast, been seen as a major reason for higher rates of diarrhoeal deaths in children.[6] Despite well-implemented clinical management training in many countries, advising mothers on how to treat their children for diarrhoea at home, this remained the weakest element of case management. Results of health facility surveys showed that only 1-10% of mothers were correctly advised.[7] Data from United Nations Children Fund (UNICEF) coverage evaluation survey and third National Family Health Survey (NFHS III) during 2005-06 showed that ORS usage rates were still unacceptable, while unwarranted anti diarrhoeal drugs and injections continued to be prescribed frequently.[8] Moreover, there was lack of knowledge and awareness amongst care providers on how to implement and achieve greater coverage of existing cost effective interventions.[9]

It was therefore relevant to explore the level of awareness about diarrhoea and its management among the mothers who were the first level of care givers. The level of knowledge varied extensively across different geographical areas due to variations of the socio-demographic characteristics of the population. And based on these variations, different community needed different health education efforts in its extent and approaches. In view of the above facts, a study was conducted in an Out Patient Department (OPD) of a rural hospital of Madhyamgram, North 24 Parganas, India to assess the level of knowledge about diarrhoea and oral rehydration therapy among the mothers having children of 6 months to 5 years with diarrhoea.

Materials and Methods

This descriptive and cross sectional study was conducted in the OPD of Madhyamgram Rural Hospital (RH). The RH usually covers a rural community with around 0.5 million population in North 24 Parganas in India.

All mothers having their children of 6 months to 5 years, who attended the OPD seeking care for diarrhoea during the period from 1st February to 30th April, 2016 were approached for the interview. Interview was conducted in Tuesday and Wednesday of each week during the period and thus 62 mothers could be interviewed. Mothers having severely sick child and who did not consent were excluded from the interview.

Data was collected on a predesigned and pretested questionnaire. A total of 14 questions have been considered. For 13 questions, score 1 was accorded for correct answer and 0 for each wrong answer. In one question (on symptom of dehydration), multiple correct answers were possible and for each response, 1 or 0 score was given. Therefore, total knowledge score ranged from 0 -19, that was divided in two groups – lower (0-8) and higher (9-19).

As per WHO definition, diarrhoea was defined as passage of frequent loose stool in past 24 hours. Safe drinking water was defined as the water free from pathogens, chemicals, color or odor and which was pleasant to taste, and used for domestic purpose. Proper hand washing was defined as hand washing with soap and water after defecation, before cooking, before serving, eating or feeding the child. Oral rehydration therapy was defined as providing fluid available at home along with ORS (Oral Rehydration Solution).[10, 11]

Chi-square test for bivariate and multiple logistic regression model for multivariate analysis were

used to identify important factors associated with the knowledge level at 95% confidence interval ($p < 0.05$).

Ethical approval

Permission to conduct this study was obtained from College of Pharmacy, University of Punjab Lahore Pakistan

Results

Demography and socioeconomic profile

In this study 62 mothers participated. The mean age of mothers was 25.6 years (Min. 19, Max. 40, and SD. 5.2). Age group of 19-26 years contributed 64.5%. Mean age of the children (6 months-60 months) was 17.5 months (Min. 7, Max. 50, and SD. 9.9). Number of mothers from general caste was 46 (74.2%) compared with 16 Scheduled Caste (SC) (25.8%). Hindu mothers counted 26 (41.9%) and Muslims counted 36 (58.1%). Mothers from joint family were 40 (64.5%) and nuclear family 22 (35.5%). Illiterate mothers were 11 (17.7%). Housewife mothers counted 45 (72.6%). According to BG Prasad Scale, class II, III, IV and V socio-economic status counted 14 (22.6%), 17 (27.4%), 8 (12.9%) and 23 (37.1%) respectively. Income per month of the family ranged from Rs 2,000 to Rs 20,000 (Min. 2,000, Max. 20,000, Mean 7,637.1, SD. 3,554.2) (**Table 1**).

Table 1: Demographic and socio-economic profile of the mothers who participated in the study (n=62)

Item	No of mothers	%	Item	No of mothers	%			
Age group in years			**Family type**			**Occupation**		
19 -26	40	64.5	Joint	40	64.5	House wife	45	72.6
27-34	16	25.8	Nuclear	22	35.5	Others	17	27.4
35-42	6	9.7	**Literacy**			**Socio Economic Status**		
Caste			Illiterate	11	17.7	Class II	14	22.6
General	46	74.2	Just literate	18	29	Class III	17	27.4
SC	16	25.8	Primary	21	33.9	Class IV	8	12.9
Religion			Secondary	9	14.5			
Hindu	26	41.9	Above secondary	3	4.8			
Muslim	36	58.1						

explored. Out of 62 mothers, families dwelling in Kachha (mud), Pukka (concrete) and mixed houses were 19 (30.6%), 13 (21.0%) and 30 (48.4%) respectively. Total 42 (67.7%) families opted for sanitary latrine and whereas, 20 (32.3%) families opted for open defecation. Families having tube well and pipeline water supply counted 36 (58.1%) and 26 (41.9%) respectively. Families those opted for municipality vat and open place for garbage disposal were 18 (29.0%) and 44 (71.0%) respectively (**Table 2**).

Table 2: Hygiene and sanitation condition of the families of respondent women (n=62)

Item	No of mothers	%	Item	No of mothers	%
Housing type			**Water supply**		
Kachha (mud)	19	30.6	Tube well	36	58.1
Pukka (concrete)	13	21	Pipeline	26	41.9
Mixed	30	48.4	**Garbage disposal**		
Defecation			Municipality vat	18	29
Sanitary	42	67.7	Open place	44	71
Open field	20	32.3	**Water supply**		
			Tube well	36	58.1
			Pipeline	26	41.9

Awareness level on diarrhoea

Knowledge about 13 selected items on diarrhoea and its management through ORS was explored. Total 36 women (58.1%) could describe what diarrhoea was. Among the mothers, 57 respondents (91.9%) heard about 'ORS'. Around one-fifth women (22.6%) knew about the correct preparation of ORS and one-third women (32.3%) knew how long ORS could be preserved. Around three-fourth women (74.2%) knew the taste of ORS. Very minimal proportion of women (4.8%) had idea about safe drinking water, and around one-third women (30.6%) had idea about proper hand washing. Around one-third of women knew about the causes of diarrhoea (29.0%) and transmission of diarrhoea (30.6%). Only 9 women (14.5%) knew that open defecation might cause diarrhoea. Majority of women, 55 (88.7%) knew about oral rehydration fluid. That proper hand washing of children might prevent diarrhoea, was known to only 33 (53.2%) women. Knowledge about alarming signs of dehydration was significantly poor. All five symptoms of dehydration were known to only 3 persons (4.8%). And 4 persons (6.5%) had no idea about any symptom (**Table 3**).

Table 3: Distribution of mothers according to the level of awareness about diarrhoea and its management (n=62)

Item	N	%	Item	N	%
Could describe diarrhoea	36	58.1	Know oral feeding during diarrhoea	21	33.9
Heard of ORS	57	91.9	Know open defecation disposal causes diarrhoea	9	14.5
Could state how ORS Prepared	14	22.6	Know proper hand washing of child prevents diarrhoea	33	53.2
Know how long ORS can be used	20	32.3	Know alarming symptoms of dehydration (total score 6)		
Know the taste of ORS	46	74.2	*No symptom*	4	6.5
Know what is safe drinking water	3	4.8	*1 symptom*	25	40.3
Know correct way of hand washing	19	30.6	*2 symptoms*	15	24.2
Know causes of diarrhoea	18	29.0	*3 symptoms*	8	12.9
Know mode of transmission of diarrhoea	19	30.6	*4 symptoms*	7	11.3
Know about oral rehydration fluid	55	88.7	*5 symptoms*	3	4.8

Total knowledge score was assessed in 0-19 scale (Min. 0, Max. 17, Median 8, Mean 7.8, and SD. 4.6). Knowledge score was divided in two groups (low score group: 0-8 and higher score group: 9-19). Lower knowledge score group accounted to 36 persons (37.1%) and higher knowledge group accounted to for 26 persons (62.9%) (**Table 4**).

Table 4: Distribution of mothers according to their level of knowledge score about diarrhoea and its management (n=62)

Knowledge score group	Frequency	Percent
0-8	36	37.1
9 - 19	26	62.9
Total	62	100

Chi-square and multiple logistic regression model were used to find out important influencers of the knowledge level. Different factors were found to be significantly associated with the knowledge level about diarrhoea (here, knowledge score).

At individual level, literacy level of women and their caste were most important influencers of the knowledge about diarrhoea (literacy: OR 2.8, $p < 0.01$; Caste: OR 0.28, $p < 0.02$). At the household level, the way of household garbage disposal also influenced the level of knowledge (OR 3.83, $p < 0.03$) (**Table 5**).

Table 5: Association between socio-demographic factors, household sanitation and awareness on diarrhoea (knowledge score) of mothers

	Knowledge score		chi square	p	O.R.	C.I. of O.R	
	0-8	9-19				LL	UL
Age group							
<25 years	23 (67.6)	11(32.3)	2.03	0.15	0.44	0.38	1.09
26-42 years	13(45.4)	15(54.6)					
Children age group							
6-18 months	13 (43.8)	16(56.2)	2.97	0.08	2.88	0.98	3.35
> 18 months	23 (69.6)	10(30.4)					
Literacy group							
Up to primary	30(88)	4(22.0)	25.5	0.01	2.82	0.05	0.38
Above primary	6(21.5)	22(78.5)					
Occupation group							
House wife	23(60.5)	15(39.5)	0.05	0.82	0.65	0.47	1.54
Others	13(54.1)	11(45.9)					
Per-capita income group							
Up to Rs 2000 per month	20(55.5)	16(44.5)	2.81	0.09	0.81	0.41	1.54
Above Rs 2000 per month	8(30.7)	18(69.3)					
Caste							
General	26(78.7)	7(21.2)	9.08	0.02	0.26	0.16	0.62
SC	11(37.8)	18(62)					
Religion							
Hindu	16(43.7)	21(56.3)	1.65	0.19	1.31	0.5	1.46
Muslim	6(24)	19(76)					
Family type							
Joint	17(44.7)	21(54.3)	0.39	0.53	1.61	0.73	2.19
Nuclear	13(56.5)	10(54.5)					
Latrine type							
Sanitary	20(47.6)	23(53.4)	0.67	0.41	0.53	0.17	1.65
Non sanitary	6(32.6)	13(68.4)					
Water supply							
Tube well	16(69.5)	7(29.5)	2.95	0.08	0.33	0.27	1.06
Pipeline	17(44.4)	22(56.4)					
Garbage disposal							
Municipality vat	14(44.8)	18(56.2)	4.42	0.03	3.53	1.21	10.29
Open	22(73.3)	8(27.7)					

Discussion

In our study 58.1% mothers could explain diarrhoea compared with 79.0% in a study in Nepal in 2011.[12] Overall health condition of Nepal is not better than India. But in this case, the level of knowledge was poorer in the study area. This reflects on the extent and quality of the heath education services provided by the public health cadres. There remains scope for

improvement. In our study awareness among mothers about the alarming signs of dehydration was very low. Only 4.8% mother knew about five symptoms of dehydration and which was 40.3% for two symptoms and 20.2% for three symptoms in a study by Shah et al. in 2014. In a study in Aligarh, symptoms which the mothers knew about diarrhea were watery stool (85%) and repeated vomiting (54%).[13]

In our study 22.0% mothers could describe how ORS were prepared. In the study in Nepal, none of the mothers were able to mention all the steps for correct and complete preparation of oral rehydration salt (ORS).[12] In Uttarakhand, 17.77% mentioned the correct method of preparing a solution from a packet (after reading the instructions on the packet).[14] In our study, 88.7% knew about home available fluid compared with 38.7% in a study in Aligarh in 2011.[12] The results depict that overall knowledge about diarrhoea and its prevention through ORS were comparatively more in our study; but it was significantly less for alarming symptoms of dehydration. This reflects on the public health concerns. If women do not know what the alarming symptoms, they will delay much to access services from the health facility to cope up diarrhoea and dehydration. This would cause severe morbidity and enhanced mortality.

In our study, literacy, caste and way of garbage disposals were found to be significantly associated with knowledge and these factors were important influencers of the knowledge. Similarly, in another study, positive correlation was found between mothers' knowledge about diarrhoea and mothers' age and education.[15, 16] Findings remind us about the need for special thrust for this group of mothers by health education. Public Health cadres may be prepared to orient the mothers from the community.

Our study was not without limitation. Our sample size was small. It was a facility based study. However, as a post graduate student of Community Medicine, the researcher had constraints of time and resources.

Conclusion

Overall knowledge about diarrhoea and its management at home was poor among the mothers of the surrounding community where from they are coming to the rural hospital facility. Mothers were aware about diarrhoea and its home management. However, their knowledge with respect to vital issues like danger signs of dehydration, benefits of oral rehydration fluids during diarrhoea, correct preparation of ORS were found to be poor. Therefore, the study identified the need for health educational interventions on diarrhea, especially for the illiterate and families from poor socio-economic background. The public health facility within the community may be trained up to orient the community. The study also opened the scope for a further research on the causes of poor knowledge and necessary preparedness of the public health institutions in the district to combat the challenge.

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