ejpmr, 2021,8(2), 18-23

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

AWARENESS, PERCEPTION, AND ATTITUDE TOWARD ORAL REHYDRATION SALT SOLUTION, AMONG THE PARENTS IN MANAGEMENT OF AWD IN CHILDREN IN RURAL AREAS OF BANGLADESH

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Article Received on 27/11/2020 **Article Revised on 17/12/2020** **Article Accepted on 07/01/2021**

ABSTRACT

Background: Diarrhea is one of the leading causes of child mortality globally. The scientific basis of oral rehydration therapy (ORT) has restructured the concept and management of diarrhea. The success of oral rehydration solutions highly depends on the awareness and attitude of parents. **Objective**: This study was done to assess the awareness, perception and attitude of parents of under-five children regarding the management of diarrhea with ORS in rural areas of Bangladesh. **Methodology:** It was an observational cross-sectional study carried in the Integrated Management of Childhood Illness (IMCI) corner of Upazila Health Complex, Boalkhali, Chittagong. Here the parents of under-five acute watery diarrheal patients attended between January 2015 to December 2016. A total of 350 cases were included. **Result:** More than half of the parents 195(55.71%) belonged to the age-group of 18-25 years. The majority of 145(41.43%) of the patients belonged to age 13-24 months. Most of the parents 344(98.28%) heard about ORS. One hundred seventy(48.57%) mentioned correctly about the procedure of preparing ORS. One hundred fifty-seven (44.86%) parents mentioned that ORS used for the replacement of fluid lost during diarrhea, 210(60.0%) mentioned every time the child had loose stool ORS solution should be administered to a child with diarrhea. More than one third 133(38.0%) of respondents mentioned that the prepared ORS solution could be kept for 12 hours and 294(84%) believed that ORS is useful in the management of diarrhea. **Conclusion:** There is a need to educate parents of diarrhea patients to improve clinical outcomes.

KEYWORDS: Acute Watery Diarrhea, ORS, Parents' awareness and attitude, IMCI.

INTRODUCTION

Diarrhea is defined as "loose or watery stools at least three times a day or more frequently than normal for a person". Each child under 5 years of age faces an average of three annual episodes of acute diarrhea. Globally acute diarrhea is the second leading cause of death in this age group. Among children, particularly during infancy both the incidence and the risk of mortality from diarrheal diseases are greatest – thereafter, rates decline gradually.[1] According to the World Health Organization (WHO) and UNICEF, 18% of all the deaths of children under the age of five means more than 5000 children are dying every day due to diarrheal diseases. Of all child deaths from diarrhea, 78% occur in the African and South-East Asian regions.[1] One-third of the total child death is due to diarrhea in Bangladesh. A child suffers on average from 4.6 episodes of diarrhea every year in rural areas, which causes about 230,000 children death.[2] In 1971 during the Bangladesh war of independence one of the first large scale-field applications of oral rehydration salts took place when outbreaks of cholera swept through refugee camps. Of the 3,700 victims treated with ORS, over 96% survived.[3] An improved ORS solution has been developed after 20 years of research, called a reduced (low) osmolarity ORS solution. This new ORS solution reduces the need for supplemental IV fluid therapy by 33% after initial rehydration in comparison to the previous standard WHO ORS solution. The new ORS solution also reduces stool volume by 20%. This new reduced (low) osmolarity ORS solution, containing 75 mmol/l of sodium and 75 mmol/l of glucose, is now the ORS formulation officially recommended by WHO and UNICEF.[4] Oral rehydration salts (ORS), and particularly the low osmolarity formula, are a proven lifesaving commodity for the treatment of children with diarrhea.[5] Reports indicated, despite the recommendations about the success of ORS, only 38% of

children less than five years old received ORT (Oral Rehydration Therapy) in the year 2008 and continued food intake during diarrheal episodes.[6] Although according to the 2006–07 Bangladesh Demographic Health Survey (BDHS), every four in five children with diarrhea were treated with oral rehydration therapy, including 77 percent who received commercially available packets of oral rehydration salts (ORS), compared with 67 percent in the year 2004. Overall, 85 percent of children with diarrhea received ORS, recommended home fluids (RHF), or increased fluids.[7] Several studies in different countries suggested that, despite this widespread general knowledge about ORT, very few knew about ORT in any detail. Relatively few could prepare a solution correctly with sugar and salt, and the majority made it too concentrated.[8-12] These studies suggest a profound lack between the knowledge of ORS and its utilization. Thus, a superficial understanding of ORS is not enough and it requires consistent efforts to emphasize the importance of ORS in resolving dehydration during diarrhea, particularly in children; since this group of age is more likely to be dehydrated quickly.[5] The present study will give us clues about the awareness and practices of parents about ORS, its preparation procedure and its use, so that we can identify the lacking and emphasize them. We hope that it will help us to decrease the unwanted deaths due to faulty technique of ORS preparation and their consequences.

MATERIALS AND METHODS

It was an observational cross-sectional study carried in the IMCI corner of Upazila Health Complex, Boalkhali, Chittagong between January 2015 to December 2016. The parents of under-five acute watery diarrheal patients attended. As the study was conducted over a limited period of time and also there is a budget constraint, the sample size is adjusted to 350. A total of 350 cases were included. Parents of acute watery diarrhea patients aged >5 years, of acute watery diarrhoea patients who were found sick (unable to participate in the study), who refuse to give consent were excluded. Patients after meeting the inclusion and exclusion criteria a simple random sampling technique was applied for selecting the sample. All data were collected in an individual pre-determined case record form containing different ID numbers.

RESULT

This Observational cross-sectional study was carried out with an aim to disclose the baseline understandings and misperception about the use of ORS among parents of rural area in the management of acute watery diarrhea and to determine factors that influence ORS solution use in children under five years with diarrhea and to assess parents' ability to prepare ORS accurately. This present study showed that more than half 195 (55.71%) parents belonged to age 18-25 years followed by 97 (27.71%) of age 26-30 years and 58 (16.57%) of age 31-35 years. The majority 145 (41.40%) patients belonged to age 13-24 months followed by 43 (12.30%) of age 0-12 months, 87 (24.90%) of age 25-36 months, 57 (16.30%) of age 37-48 months and 18 (5.10%) of age 49-59 months in this current study. In this current study it was observed that 344 (98.28%) respondent heard about ORS and 190 (54.28%) got the information from doctors, 70 (20%) from Relatives/neighbors/friends, 47 (13.43%) from health worker/NGO workers and 43 (12.29%) from mass media-TV/Radio/Newspaper. Regarding the procedure of ORS preparation for children only 170 (48.57%) parents mentioned correctly (1 sachet of 500gm in half a liter of water) and 210 (60.0%) mentioned previously boiled and cooled water have to use to prepare ORS solution in this study.

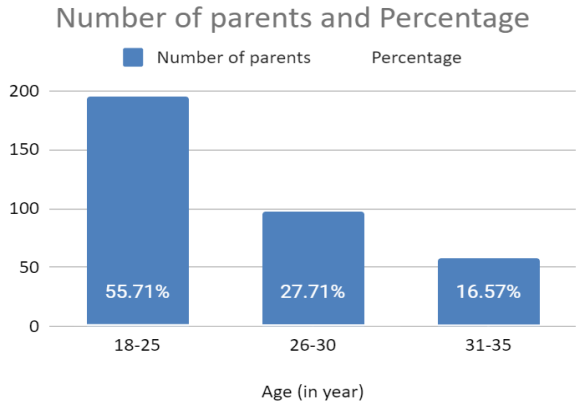

Figure 1: Distribution of the parents of study patients by age (n=350).

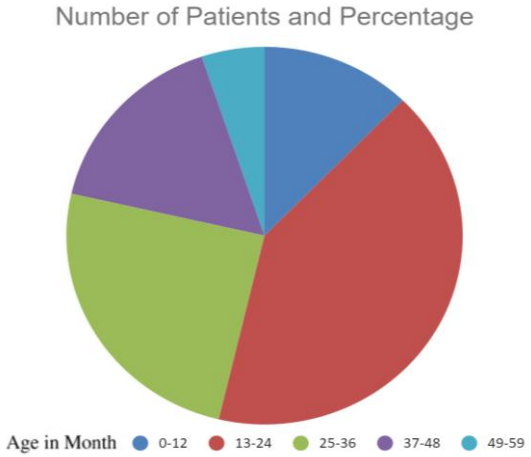

Figure 2: Distribution of the study patients by child's age (n=350).

Table I. Distribution of the parents of study patients by awareness ,perception and attitude of ORS (n=350).

Have you ever heard of ORS?	**Number of patients**	**Percentage**
Yes	344	98.28
No	6	1.72
Where did you get the information regarding ORS?		
Relatives/neighbors/friends	70	20
Doctors	190	54.28
Health worker/NGO workers	47	13.43
Mass media-TV/Radio/Newspaper	43	12.29
Ch Children given an ORS solution, how is it mixed?		
Correctly (1 sachet of 500gm in a half liter of water)	170	48.57
Incorrect	155	44.29
Don't know/can't answer	25	7.14
What water do you use to prepare an ORS solution?		
Previously boiled and cooled water	210	60
Drink water (not boiled)	100	28.57
Any available water	35	10
Other	5	1.43
What is an ORS solution used for?	**Number of patients**	**Percentage**
Replacement of fluid lost during diarrhoea	157	44.86
Stopping diarrhoea	85	24.29
Don't know/ cannot answer	107	30.56
Others	1	0.29
How many times (how frequent) a day should ORS solution be administered to a child with diarrhoea		
Every time the child had loose stool	210	60.0
Don't know/ can't answer	140	40.0
How much ORS solution should be given to the child each time the child has loose stool?		
As much as the child can drink	210	60.0
Don't know/ can't answer	135	38.57
Other	5	1.43
How long should you keep the prepared ORS solution?		
Until it is finished	212	60.57
12 hrs	133	38
Don't know/ can't answer	05	1.43
Did you get any health education about ORS?		
Yes	227	64.86
No	123	35.14
Do you think ORS should be started immediately after loose stools?		
Yes	287	82
No	63	18
Do you think ORS is useful in the management of diarrhoea?		
Yes	294	84
No	56	16
What are the reasons for giving ORS to your child?		
It is cheap, easily available	25	7.14
Prevents dehydration	175	50
Don't know	150	42.86
Where did you go for the ORS sachets?		
Government health facility	84	24
Drug shop/ private clinic	266	76
When did you start ORS?		
After Doctor's advice	168	48
By yourself	179	51.14
Advised by relative/ friend/neighbour	3	0.86

Table II: Number of correct responses amongst the parents of different age (n=350).

Age (in year)	n	Number of correct responses				P value
		Mean	±SD	ran	ge	
18-25	195	13.5	±3.5	4	-20	
26-30	97	10.5	±5.0	3	-21	0.001[s]
31-35	58	10.0	±3.7	2	-20	

Table III: Number of correct responses according to the educational status of parents (n=350).

Educational status	n	Number of correct responses				P value
		Mean	±SD	Ran	ge	
Illiterate	111	10.1	±4.8	2	-18	
Primary	132	12.9	±3.7	4	-20	
Under SSC	92	12.4	±3.8	5	-20	0.001[s]
HSC	11	15.3	±1.6	12	-17	
Graduate	4	16.9	±3.8	14	-21	

Table IV: Number of correct responses according to occupational status (n=350).

Occupational status	n	Number of correct responses				P value
		Mean	±SD	ran	ge	
Employed	79	12.2	±3.3	5	-20	0.594[ns]
Unemployed	221	11.9	±4.6	2	-21	

Table V: Number of correct responses according to socioeconomic status (n=350).

Socioeconomic status	n	Number of correct responses				P value
		Mean	±SD	ran	ge	
Poor	198	11.7	±4.4	2	-20	
Middle class	139	13.0	±3.5	5	-21	0.001[s]
Upper class	13	5.5	±3.5	3	-15	

This current study, showed that 157 (44.86%) parents mentioned that ORS used for replacement of fluid lost during diarrhea, 210 (60.0%) mentioned every time the child had loose stool ORS solution should be administered to a child with diarrhea. More than half 210 (60.0%) mentioned that as much as the child can drink ORS solution should be given to the child each time the child has loose stool. More than one third 133 (38.0%) parents mentioned the prepared ORS solution can be kept for 12 hours. In this present study, it was observed that 227 (64.86%) got health education about ORS, 287 (82.0%) mentioned that ORS should be started immediately after loose stools and 294 (84.0%) believed that ORS is useful in the management of diarrhea, 175 (50.0%) believed ORS prevents dehydration. 84 (24.0%) parents mentioned that they go to government health facilities for ORS sachets and 266 (76.0%) collect ORS sachets from drug shops / private clinics. One ninety-two (64.0%) mentioned that they seek treatment for diarrhea on the same day and 179 (51.14%) mentioned ORS started by themselves and 168 (48.0%) after doctor's advice.

DISCUSSION

This current study showed that 344 (98.28%) respondent heard about ORS and 190 (54.28%) got the information from doctors, 70 (19.1%) from Relatives/ neighbors/ friends. This is parallel with Khalili et al.[6] study who observed in their study subjects that claimed physician consultation 51.0%, health center staff 44.6% as well as relatives and television programs as a major source of information. Regarding the procedure of ORS preparation for children only 170 (48.57%) parents mentioned correctly (1 sachet of 500gm in half a liter of water) and 210 (60.0%) mentioned previously boiled and cooled water have to use to prepare ORS solution in this study. This is similar to the Piechulek et al.[13] study that found that ORS was correctly prepared by 44% of parents who used ORS and only 54% of parents used the correct amount. Mahor[12] observed only 39.0% of respondents knew the correct method of ORS preparation. This current study, showed that 157 (44.86%) parents mentioned that ORS used for replacement of fluid lost during diarrhea, 210 (60.0%) mentioned every time the child had loose stool ORS solution should be administered to a child with diarrhea. More than half 210 (60.0%) mentioned that as much as the child can drink ORS solution should be given to the child each time the child has loose stool. More than one third 133 (38.0%) parents mentioned the prepared ORS solution can be kept for 12 hours. The result is congruous with the Al-Atrushi et al.[16] study where 60.0% of parents did not know exactly what oral rehydration solution is used for in cases of diarrhea. . In that study, the proper way for the preparation of oral rehydration solution was unknown to 48% of parents and 35.7% did not know the proper way for the administration of oral rehydration solution while 59% of them didn't know that it should be discarded after 12 hours. In this present study, it was observed that 227 (64.86%) got health

education about ORS, 287 (82.0%) mentioned that ORS should be started immediately after loose stools and 294 (84.0%) believed that ORS is useful in the management of diarrhea, 175 (50.0%) believed ORS prevents dehydration. One hundred and seventy-nine (51.14%) mentioned ORS started by themselves and 168 (48.0%) after doctor's advice. This is consistent with the study of Seyal and Hanif[14] study that observed only 49.67% of the respondents gave ORS to their children during acute diarrhea out of which 27.0% used it by their own knowledge. Mumtaz et al.[17] observed that most (75.5%) of the respondents knew how to prepare ORS correctly, 25.0% gave ORS during diarrhea to their children and only 27% contacted a pediatrician. The number of correct responses by the age of parents it was seen that 13.5±3.5 varied from 4 to 20 in age belonged to 18 to 25 years, 10.5±5.0 varied from 3 to 21 in age belonged to 26 to 30 years. The difference was significantly ($p<0.05$) higher in younger respondents. In Saurabh et al.[15] study said that young age was found to be significantly associated with more knowledge of ORS preparation. This present study showed that the number of correct responses according to the educational status of parents was 10.1±4.8 varied from 2 to 18 in illiterate education status, 12.9±3.7 varied from 4 to 20 completed primary education, 15.3±1.6 varied from 12 to 17 completed HSC education and 16.9±3.8 varied from 14 to 21 completed graduate education. The difference was significantly ($p<0.05$) increased with the level of education. Khalili et al.[6] showed the higher level educated and employed parents had better knowledge. In this current study it was seen that the number of correct responses according to occupational status was 12.2±3.3 varied from 5 to 20 in employed and 11.9±4.6 varied from 2 to 21 in unemployed occupational status. The variation was significantly ($p<0.05$) higher in respondents who were employed. Khalili et al.[6] showed that employed respondents included moderate and good knowledge almost 77.3% and 13.6% respectively. In this present study it was noted that the number of correct responses according to socioeconomic status was 11.7±4.4 varied from 2 to 20 come from poor class family, 13.0±3.5 varied from 5 to 21 came from a middle-class family and 5.5±3.5 varied from 3 to 15 come from an upper-class family. The difference was significantly ($p<0.05$) higher in middle-class families. Parents with low per capita income were less likely to know about ORS preparation compared to their counterparts observed by Saurabh et al.[15]

CONCLUSION

The findings of our study indicated that the awareness, perception and attitude of parents of under 5 children were insufficient and inappropriate. Social and cultural faith influenced their practices and they usually had no scientific ground. Proper health education is highly demanded for the parents to be provided with, particularly those covering the topics of the proper use of ORS in rural areas. The plan proposes an innovative approach for integrating the planning, delivery and monitoring of health intervention. Both government, non-government organizations and mass media need to participate actively to deliver health education to the general population to decrease the burden of diarrheal diseases and its morbidity in the rural areas by proper use of ORS.

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